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Paul H. Douglas

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ARE THERE LAWS OF PRODUCTION?*

By PAUL H. DOUGLAS

I. *Introduction*

A century and a third ago, in 1815, Malthus[1] and Sir Edward West[2] simultaneously pointed out that if successive combined doses of labor and capital were applied to a given piece of land, the amount of the product would increase by diminishing increments. Two years later this principle was adopted by Ricardo in his *Principles of Political Economy* as the basis for his theory of distribution. The joint return to labor and capital was declared by Ricardo to be governed by and to be equal to the amount of product added by the last combined dose of labor and capital, while the owners of land received as rent all sums in excess of these amounts. Since the quantities of labor and capital were not supposed to vary in relation to each other but were instead bound together in fixed and unvarying proportions, there was no way of isolating the specific contributions of these two factors as a means of determining the rates of wages and of interest. These rates were instead presumed to be regulated by cost-of-supply factors, namely, the Malthusian forces governing population which would keep wages down to a fixed minimum which was at least close to basic subsistence and the low minimum needed to compensate savers and investors. Such was the classical theory of distribution which dominated economic thinking for over sixty years.

Meanwhile, in Germany, during the 1840's, Von Thünen had theoretically broken up the combined dose of labor and capital and had pointed out that when each of the factors was separately increased but the others held constant, the product increased by diminishing

* Presidential address delivered at the Sixtieth Annual Meeting of the American Economic Association, Chicago, Illinois, December 29, 1947.

[1] T. R. Malthus, *Nature and Progress of Rent*, p. 61.

[2] Edward West, *The Application of Capital to Land* (Hollander ed., 1815) p. 54. Prior to Malthus and West, Turgot had pointed out in 1768 that successive applications of labor to land yielded diminishing increments to product. Turgot, *Oeuvres* (1844 ed.), pp. 420-21.

increments.[3] Von Thünen went on to state that the rates of wages and of interest were equal to the amounts of the product added by the last increments of each. He was thus the real discoverer of marginal productivity. Nor was this all. He reasoned that the product added by each equal increment of a factor was a constant fraction of the preceding increment of product, namely two-thirds, in the case of labor and nine-tenths, in the case of capital. This meant that it would be necessary to increase a factor in a given geometric ratio in order to increase the product by equal arithmetic amounts. This is precisely the law of the soil which Mitscherlich and W. J. Spillman later discovered,[4] and it is strikingly similar to the so-called Weber-Fechner law of physiological response. It would be most interesting to find out whether these conclusions of Von Thünen were merely happy hypotheses or whether, like so much of his work, they were based upon experimentation. Von Thünen's work, unfortunately, never had the influence which it deserved. The British, with their customary insularity of thought, virtually ignored it. The Germans, dominated by the fact-grubbing historical school, while lavishing attention upon Von Thünen's theory of location and his advocacy of $\sqrt{ap}$ as a just wage, almost completely neglected his discovery of the curve of the diminishing increment as the guiding principle for both production and distribution. Indeed, schooled as they were to believe in the relativity of economic principles, they naturally averted their gaze from what gave every evidence of being an economic law, which was independent of time and place.

It is to the glory of American economics that it was one of our own number, John Bates Clark, who at a meeting of our Association in 1888, fifty-nine years ago tonight, announced what was in effect the rediscovery of the marginal productivity principle. Clark, who had studied in Germany, had possibly been unconsciously influenced by Von Thünen, but certainly he was not consciously following him when he stated:[5]

> An increasing amount of labor applied to a fixed amount of pure capital goods yields a smaller and smaller rate of return. . . . Let there be ten thousnd dollars worth of productive instruments and ten men to use them. Let each man be supposed to create by the operation a product worth three dollars

[3] J. H. Von Thünen, *Der Isolirte Staat; Zweiter Teil,* pp. 507-557-59.

[4] W. J. Spillman, *The Law of Diminishing Returns* (1924).

[5] John Bates Clark, "The Possibility of a Scientific Law of Wages," ***Publications, American Economic Association,*** Vol. IV (March, 1889). pp. 39-63. It was at this same session that Stuart Wood, the economist-businessman, also developed the marginal productivity theory of wages and interest and indeed went somewhat further by developing the principle of elasticity of substitution. Stuart Wood, "The Theory of Wages," *op. cit.,* pp. 5-35.

a day. Raise now the number of workmen to twenty and let the capital remain the same and each man will create less than before. A day's product will be 3−X dollars. Each successive unit of labor employed in connection with a fixed amount of pure capital produces less than any of its predecessors. . . . General wages tend to be equal to the actual product created by the last laborer that is added to the social working force.[6]

The earnings of capital are subject to identically the same law as those of labor; they are fixed by the product of the last increment that is brought into the field. . . . Let the labor supply remain fixed and let capital increase and each increment of the latter, as it enters the productive field finds that it can create less than any of its predecessors. The general law of diminishing returns is two-sided.[7]

During the next decade Clark completed his theory in a series of subtle articles, and in 1899 gave it final expression in his book *The Distribution of Wealth.*

In the meantime, in 1894, the extraordinarily gifted Philip Wicksteed showed in his pathbreaking little essay, *The Coordination of the Laws of Distribution,* that if production were characterized by a homogeneous linear function of the first degree (that is, if when each and all of the factors of production were doubled or tripled, product would increase in the same proportion), then with each factor receiving its marginal product, the total product would be absorbed in payments to the factors without either surplus or deficit. This essay of Wicksteed's fluttered the mathematical dovecotes. Edgeworth, who in his *Mathematical Psychics,* had attempted to prove, by quotations from Owen Meredith's *Lucille,* that men should receive larger incomes than women, now dismissed with elegant irony the theory that production followed a homogeneous linear function. Pareto's attempted refutation was almost pure sophistry in which, by limiting the market, he sought to prove that product would not increase in proportion to the factors. It remained for Wicksell to give the most sensible treatment of this subject when he pointed out that while the homogeneous production function could not be expected to apply over the whole range of output within a plant, nevertheless under perfect competition, each firm would tend to carry its scale of output to the point where neither increasing nor decreasing returns prevailed but where instead the rate of return was constant.[8] Since industries were merely aggregates of firms and the economy as a whole was an aggregate of industries, it was presumed that the linear function tended, therefore, to be true of society

[6] *Publications, American Economic Association* (Mar., 1889), p. 49.

[7] *Ibid.*, p. 53.

[8] Knut Wicksell, *Lectures on Political Economy,* Vol. I, pp. 101-33.

as a whole at its growing points. Under these conditions, Wicksteed's conclusion held that the payment of the marginal products to each unit of the respective factors of production exactly distributed the product.

At this point, the theoretical discussion of marginal productivity was largely allowed to lapse, except for the clarifications and refinements which were introduced by our chairman, Professor Carver and by F. M. Taylor.

Over the course of the decades which followed, two tendencies in economic teaching became fairly evident. The first was a form of split personality or scientific schizophrenia, which developed in our economics departments. In the classes in economic theory, the principles of pure marginal productivity were taught, uncontaminated by any idea that there might be imperfect competition in either the product or the factor markets, or that there might be unemployment for reasons other than a wage rate in excess of social marginal productivity. This group taught that labor received the amount which its last unit added to the total product multiplied by the number of workers, while the return to capital was similarly determined. Neither trade union nor governmental action was needed to give to labor its own marginal product under conditions of full employment. All that was required was for the employers to bid competitively against each other for labor and this condition was commonly assumed to exist. But if government and unions disturbed the system of *laissez-faire* by raising wage rates above the social margin, this could only be effected by decreasing the numbers employed and hence creating unemployment.

In the classes which dealt with labor economics, however, a different doctrine was taught. Here marginal productivity was muted and the theory of the Webbs, as developed in *Industrial Democracy,* was stressed. It was the pressure of the market competition for lower prices which, weighing more heavily upon the successive levels of sellers because of their heavier overhead costs, tended to drive down wages and to worsen working conditions. Unions and governmental legislation operating through the imposition of common rules, could not only protect the workers from this competition but could raise the general standard of living.

It would be a fascinating task to analyze the differences between these two sets of theories; one dealing primarily with real and the other, with money wages; one assuming the relative absence and the other, the presence of unemployment; one postulating free and perfect competition between employers and between workers; the other absorbed by the power struggles of combinations of employers and workers. But such is not our present task. It is enough to point out

that both of these two widely conflicting doctrines have been taught within our economics departments with little effort made by either set of protagonists to determine the relative truth of either, or their compatability. So far has this confusion of doctrine gone, that I have known professors, who teaching both theory and labor economics, have instilled the pure doctrine of John Bates Clark during one hour, and then during the next hour have taught as economic gospel the bargain theories of Sidney and Beatrice Webb!

The effect upon our students of this dualism in the winds of doctrine has been most unfortunate. It has caused some to shrug their shoulders and to dismiss all economic teaching with the words of Omar, so beloved by sophomores,

> Myself when young, did eagerly frequent
> Doctor and Saint, and heard great argument
> About it and about; but evermore
> Came out by the same door where in I went.

Others, like chameleons, have given diametrically different answers to identical questions, depending on which instructor asked them. But to every candidate for the Ph.D. degree, there has loomed the nightmare of that dreaded hour when in his oral examination, he must face both sets of teachers and know that the answers which would be judged right by one school would be judged wrong by the other. Such a state of affairs is at once both ridiculous and scandalous, and as long as it continues, there is little hope for scientific progress or even sound mental health among economists.

But within the ranks of the theorists themselves, a serious intellectual slovenliness, unfortunately, set in. Convinced that the marginal productivity curves of the factors were negatively inclined, they contented themselves with drawing the curves as sloping downwards and to the right, but took apparently little interest in trying to determine what the positions and slopes of these curves actually were. Thus I have seen an experienced instructor on successive days draw widely differing marginal productivity curves for labor, one declining very gradually, one at an angle of 45°, and the third plunging sharply downward. Moreover, this instructor gave every evidence of not realizing that there was any significant difference between these curves nor did he indicate whether he was drawing the curves upon an arithmetic or a double logarithmic scale. Indeed, the slope of the curve seemed to be determined partly by chance, partly by the stance of the instructor, and partly by the degree to which he happened to bend his arm!

The orthodox theorists may urge in self defense that they do not

have the statistical information which would permit them to approximate the production function, the elasticities of the marginal productivity curves, or to determine the degree to which the actual distribution of the product conforms to what one would expect from the nature of the production function itself. But the sad truth of the matter is that they have made little effort to find out and have instead turned their backs upon inductive research and have, in effect, been school men living within ivy-clad towers.

II. *The Early Studies of the Cobb-Douglas Production Function*

It was twenty years ago last spring that, having computed indexes for American manufacturing of the numbers of workers employed by years from 1899 to 1922, as well as indexes of the amounts of fixed capital in manufacturing deflated to dollars of approximately constant purchasing power, and then plotting these on a log scale together with the Day index of physical production for manufacturing, I observed that the product curve lay consistently between the two curves for the factors of production and tended to be approximately a quarter of the relative distance between the curve of the index for labor, which showed the least increase over the period, and that of the index for capital which showed the most. Since I was lecturing at Amherst College at the time, I suggested to my friend, Charles W. Cobb, that we seek to develop a formula which would measure the relative effect of labor and capital upon product during this period. We were both familiar with the Wicksteed analysis and Cobb was, of course, well versed in the history of the Euler theorem. At his suggestion, therefore, the sum of the exponents was tentatively made equal to unity in the formula

$$P = bL^kC^{1-k} \tag{1}$$

Here it was only necessary to find the values of b and k. This was done by the method of least squares and the value of k was found to be .75. This was almost precisely what we had expected because of the relative distance of the product curve from those of the two factors. The value of the capital exponent, or 1-k, was, of course, then taken as .25. Using these values, we then computed indexes of what we would theoretically have expected the product to be in each of the years had it conformed precisely to the formula. We found that the divergencies between the actual and theoretical product were not great since in only one year did they amount to more than 11 per cent, and that except for two years, the deviation of the differences was precisely what we would expect from the imperfect nature of the indexes of capital and labor. Since our index of capital measured the quantities

which were *available for,* rather than their relative *degree of use,* it did not make allowance for the idle capital in periods of depression nor for the more intensive use of capital during years of prosperity. Similarly, our index of labor did not make allowance for failures to work full time in the bad years, nor for overtime hours which were worked in the good years. It was, therefore, to be expected that the actual product (P) would exceed the theoretical product (P') in years of prosperity and would fall below it in years of depression. So in fact it did in every year except the war years of 1918 and 1919. Professor Cobb and I, therefore, regarded these deviations as additional evidence of the general validity of the formula for normal times.

Still another striking bit of evidence was found in the fact that under perfect competition with a production formula of this type we would expect a factor to receive as its share of the product, the proportion indicated by its exponent. From the income studies of the National Bureau of Economic Research, we found that labor's share of the net value product of manufacturing during the decade 1909-1918, was estimated at 74.1 per cent, or almost precisely the value of the exponent for labor.

Professor Cobb and I embodied the results of our inquiries in a paper which we read before this Association exactly twenty years ago tonight.[9] We then determined to analyze more of such time series. Cobb computed indexes of labor, capital, and product in Massachusetts manufacturing for the period 1890-1926, and found the value of k to be .743. Interestingly enough, it was also found that the average of labor's share of the net value of the product in that state for that period was .74, or a virtual identity with the value of k.[10] A similar study, which was made in Chicago by Mr. Director for New South Wales manufacturing for the period 1901-1927, found k to have a value of .65.

There the matter more or less rested when my book, *The Theory of Wages,* appeared in 1934. Three years later, with the aid of Mrs. Marjorie Handsaker, I resumed our analysis of time series, and after working up data for Victorian manufacturing for the period 1907-1929, we found the value of k under the k and 1-k formula to be .71.[11] Labor's share of the net product or W/P was found to be .61 for this period.

We then introduced two important new features into our investiga-

[9] C. W. Cobb and Paul H. Douglas, "A Theory of Production," *Am. Econ. Rev.*, Suppl., Vol. XVIII (Mar., 1928), pp. 139-65.

[10] See Douglas, *The Theory of Wages,* pp. 159-66.

[11] Handsaker and Douglas, "The Theory of Marginal Productivity as Tested by Data for Manufacturing in Victoria," *Quart. Jour. Econ.*, Vols. LII and LIII (Nov., 1937 and Feb., 1938), pp. 1-36 and 215-54.

tions. An able young American scholar, David Durand,[12] had published in 1937, an excellent critical article of the earlier material, and had urged that the restricted function of

$$P = bL^kC^{1-k} \tag{1}$$

be abandoned for one in which the exponent for capital was independently determined. As he correctly pointed out, the use of the k and $1-k$ function assumed the existence of an economic law which it should be one of the tasks of science to test, namely, the assumption of true constant returns. If we permitted the exponent for capital to be independently determined, it would then be possible for the sum of the exponents to be either greater or less than unity and hence to show true increasing and decreasing as well as constant returns to scale. We therefore decided that Durand's suggestion should be adopted and that we should try to find the values in terms of the formula:

$$P = bL^kC^j \tag{2}$$

The second change was to broaden our fields of investigation. Hitherto, we had dealt only with time studies and had found the values of our exponents from index numbers of labor, capital, and product within a given economy, with each year serving as a separate observation. Here we measured the effect upon total physical product, of changes in the physical quantities of labor and of capital and from these we derived curves of diminishing incremental physical productivity of the classical type. We now determined to open up another field for investigation and to make cross-section analyses between industries in a given economy for specific years. Thus the annual statistics of manufacturing for the British Dominions (although not the British Census of Production itself) and the decennial and quinquennial *Censuses for Manufacturing* for the United States up until 1921 showed aggregates for each of a wide variety of industries from which it was possible to compute: (1) aggregates of the average numbers employed, including wage earners, clerical and salaried employees, officials and generally firm members and working proprietors (L), (2) aggregates of capital (C) expressed in terms of dollars including both fixed and working capital, and (3) aggregates of the *net* value of product added by manufacturing expressed in terms of dollars (P).

In these studies, differences between industries in the quantities of their net value product were presumed to be a function of the total

[12] David Durand, "Some Thoughts on Marginal Productivity with Special Reference to Professor Douglas' Analysis," *Jour. Pol. Econ.*, Vol. XLV (Dec., 1937), pp. 740-58.

number of employees and of the total quantities of fixed and working capital with each industry serving as a separate observation. This is obviously a somewhat different production function from that which is based on the time series. The quantities of labor used are physical quantities and though capital is expressed in value terms, these are also rough measurements of relative physical amounts. But since product is also expressed in value terms, this is the result not only of: (a) changes in the increments to the total physical product but also of (b) changes in the exchange value, or the relative price per unit of the products of an industry. The net values turned out by the respective industries will, therefore, be affected in these cases not only by the quantities produced but also by the respective demand curves for the products. Changes in each of these variables will affect the total exchange value produced.

Some critics will, of course, object that this second type of study, since it includes both quantities and prices, does not measure production at all and is in no sense a test of marginal productivity theory. It is certainly a somewhat different type of production function from that which is based on index numbers of quantities. But marginal productivity theory has always implicitly dealt in terms of values as well as of physical quantities since it assumes that the supplies of labor and capital in each of the various industries are regulated by the principle that the respective marginal laborers will produce equal amounts of value as will the marginal units of capital. In the apportionment of resources within an economy, therefore, the principle of diminishing incremental value productivity is an essential part of economic theory and is worthy of consideration. There is no reason why a production function which deals with it should not also be worthy of consideration and treatment.

Although interrupted by the war, we now have completed six cross-section or inter-industry studies for American manufacturing, namely, for the years 1889, 1899, 1904, 1909, 1914, and 1919; four cross-section studies for Canada covering the years 1923, 1927, 1935, and 1937; three studies for Victoria for the years 1910-11, 1923-24, and 1927-28; one study for New South Wales for 1933-34, and five studies for the Commonwealth of Australia, namely, 1912, 1922-23, 1926-27, 1934-35, and 1936-37. Two of my students, Messrs. G. Brinegar and K. O. Campbell, have just finished such a study for Queensland for 1937-38, and two more, Messrs. B. Solomon and N. A. Deif, are completing another study for New Zealand for 1926-27. In all, therefore, twenty-one cross-section studies have been carried through by our Chicago group to add to our previous four time studies, namely,

for the United States, Massachusetts, New South Wales, and Victoria. In addition, two New Zealand economists, Max Brown[13] and J. W. Williams,[14] have carried through two time studies for New Zealand while the latter has also carried through a cross-section study for that country, as has G. W. G. Browne[15] for South Africa. We have, therefore, records for a total of twenty-nine inductive studies of the production function instead of the three which were reported upon thirteen years ago in *The Theory of Wages*.

In these investigations which have been carried out over the last two decades, we have had the assistance of a devoted and, I believe, competent group of associates, and in the aggregate many tens of thousands of hours have been spent upon the work. I am deeply indebted to this group, and while I am solely responsible for any errors which may lie within the work, my associates are chiefly entitled to any credit which may be forthcoming.[16]

Since these studies were carried out over a period of many years and since there were differences between countries and between years within a country in the basic data used, and since we were also constantly trying to improve our methods, it was inevitable that some dissimilarities should have developed in the precise content of the categories used and in the methods of attack. We have now ironed out a great many of these differences, and I believe that with a few exceptions which will be later noted, the results have now been made roughly comparable. It is hoped that in the next few months they may be made completely so.

III. *The Main Results of the Study of the Production Function in Manufacturing*

We can summarize the main results of these studies in three tables. Table I brings together the main results for manufacturing in the

[13] See an unpublished Ph.D. thesis at Cambridge by Max Brown, *The Relation Between Capital and Labour in New Zealand*.

[14] J. W. Williams, "Professor Douglas' Production Function," *Econ. Record*, Vol. XXV (1945), pp. 55-63.

[15] G. W. G. Browne, "The Production Function for the South African Manufacturing Industry," *So. African Jour. Econ.*, Vol. XI (Dec., 1943), pp. 258-68.

[16] First, of course, I am indebted to my chief associate during this period, namely, Grace Gunn, and after her to Marjorie L. Handsaker, Patricia Ogburn, Martin Bronfenbrenner, Ernest Olson, and Estelle Mass. But we have also had the faithful aid of numerous research assistants, computers, and draftsmen, among whom have been Yetta Abend, Helen Butcher, Julia Elliott Lewis, Oscar Seltzer, K. Sanow, H. Minsky, B. Nimer, William L. Slayton, Betty Roth, Donna Allen, Mitchell Locks, Y. K. Wong and Margaret Labadie. My colleague H. G. Lewis has also been most helpful in his criticisms and suggestions, as have John H. Smith and Colin Clark.

United States, as does Table II, for Australia; while Table III covers the investigations for the three British Dominions of New Zealand, South Africa, and Canada.

We may properly begin with a consideration of the American results, which include four time series studies for the period 1899-1922, and six cross-section or inter-industry investigations for the various census years from 1889 to 1919. It is unfortunate that the statistics of capital were omitted from the *United State Census of Manufactures* after 1919 and that we have been unable to continue our analysis of American data beyond the dates stated. Fortunately, the British Dominions in their admirable annual *Censuses of Production* have continued to collect statistics on the amounts of capital invested and this has permitted us to carry on studies for these countries in more recent times.

The four sets of time studies for the United States show somewhat differing results because of the differences which exist between the series of index numbers for labor and product. The precise nature of these series is described in the footnotes to Table I. It is believed that Series II, III, and IV, are appreciable improvements over the original Cobb-Douglas series or Series I. It will be observed that Series II and III, which use total man years (including clerical employees as well as wage earners) and total standard man hours respectively, as the measure of labor, show *k's* with values of .78 and .73 respectively. Series IV, which eliminates secular trends from each of the three basic series and expresses each observation as a percentage of its respective trend, gives k a value of .63. The value of j varies from .15 under Series II to .30 under Series IV. On the whole, Series II is the one in which the definition of the factors of production is most comparable to that of the cross-section or inter-industry studies, but Series IV avoids the dangers connected with the downward bias of the index of production and also eliminates the factor of time.

Five of the six inter-industries studies show lower values for k than do Series I, II, and III of the time studies. The k's average .63 for the six cross-section years with the average of the j's amounting to .34. The values of k and j for the initial and terminal years of 1889 and 1919, however, deviate appreciably from this average. Those for the earlier years have lower values of k and higher values of j, while in 1919 this tendency is reversed. The values of the exponents during the four middle years of 1899, 1904, 1909, and 1914, however, do exhibit a marked stability around the general average, with the k's ranging between .61 and .65, and the j's between .31 and .37.

It will be observed that in three cross-section studies, the values of k and j are many times their respective standard errors, the k's from

TABLE I.—THE VALUES OF THE PRODUCTION FUNCTION FOR AMERICAN MANUFACTURING 1889–1922

Years		$P=bL^kC^j$						$P=bL^kC^{1-k}$	
		k	σ_k	j	σ_j	$k+j$	b	k	σ_k
A. Time series									
Series I[a]	1899–1922	.81	±.15	.23	±.06	1.04	.84	.75	±.04
Series II[b]	1899–1922	.78	±.14	.15	±.08	.93	1.38	.90	±.04
Series III[c]	1899–1922	.73	±.12	.25	±.05	.98	1.12	.76	±.04
Series IV[d]	1899–1922	.63	±.15	.30	±.05	.93	1.35	.69	±.05
B. Cross-section or inter-industry studies based on industry aggregates[e]									
Year	N								
1889	363	.51	±.03	.43	±.03	.94	58.34	.53	±.03
1899	332	.62	±.02	.33	±.02	.95	106.43	.66	±.02
1904	336	.65	±.02	.31	±.02	.96	107.40	.68	±.21
1909	258	.63	±.02	.34	±.02	.97	90.99	.66	±.02
1914	340	.61	±.03	.37	±.02	.98	81.66	.63	±.02
1919	556	.76	±.02	.25	±.02	1.01	244.21	.75	±.02
Average		.63		.34		.97		.65	

[a] The original Cobb-Douglas series of Labor, Capital, and Product as published in the original paper in 1927, were as follows: (1) Labor (L) = average number of employed wage earners only. Salaried employees, officials, working proprietors, etc., were *not* included; (2) Capital (C) = value of plant, buildings, and tools and machinery reduced to dollars of constant purchasing power with annual increments of investment divided by a specially constructed index of the relative cost of capital goods in which the wholesale prices of metals and metal products, of building materials, and of wages were given the respective weights of 4, 2, and 3; (3) Product (P) = the original Day index of physical production as published in the *Review of Economic Statistics*, Vol. II (1920), pp. 328–29, and Vol. VI (1923), p. 201. For a fuller description see Cobb and Douglas, "A Theory of Production," *Am. Econ. Rev.*, Vol. XVIII, Suppl. (Mar., 1928), pp. 139–65.

[b] The basic data used in Series II differ from those in Series I in that (1) labor now includes clerical and salaried workers as well as wage earners; (2) The basic index of physical production used was the Day-Thomas revision as it appeared in *The Growth of Manufactures, 1899–1923*, Census Monograph VIII, instead of the earlier Day study which was used in Series I. Values for the intercensal years were interpolated by the use of the earlier Day series, while I constructed a new index for leather. See Douglas, *The Theory of Wages*, pp. 174–76. The Day-Thomas index gave slightly lower values for P for the terminal years than the earlier index.

[c] The main difference which distinguishes Series III from Series II is that Labor (L) is defined to be the *relative total standard man hours* worked in the various years by the combined force of wage earners and clerical and salaried employees. This was obtained by multiplying (a) the indexes of employment for the various years by (b) the indexes of the length in manufacturing of the standard working week. For data and methods see Douglas, *Real Wages in the United States*, pp. 546–47.

[d] The essential distinguishing feature of Series IV is that the factor of time was eliminated from the basic data, not from the logs of data. This was done by fitting trends to each of the three series and expressing each index for a given year as a percentage of its trend. The basic data themselves were, however, identical with those used in Series II.

[e] The series of Labor, Capital, and Product in the six cross-section studies have now been reduced to an almost completely comparable basis: (1) Labor (L) = average number of wage

17 to 38 times their standard errors and the j's from 12 to 18 times as great as their standard errors.

On the whole, we should not be surprised by the fact that we obtain higher values for k and lower values for j in our first three time series studies than we do for the cross-section studies. For as we have pointed out, the two functions are, in fact, somewhat different and we should not necessarily expect identical results. Moreover, in the time studies, there tends to be a systematic downward bias to the index of production which keeps it closer to the index of labor than it should be in reality and hence gives an excessive value to k. This downward bias is caused by two factors: (1) Since the indexes are primarily based on the quantities of raw material produced, they do not include the increased fabrication and reworking of these materials which is a pronounced, although not a universal, tendency of industry. (2) It is in practice not possible to include with sufficient rapidity the new products which are continually pushing themselves forward, nor to drop in adequate time the products which are becoming obsolete. The net result is to keep the index numbers of Product (P), particularly during the latter years of a given period, closer to Labor (L) than in reality they should be and hence k is raised above and j is depressed below their "true" values.

This weakness is absent from the cross-section or inter-industry studies, which are made for a given year, and we would, therefore, expect the k's to be lower and the j's to be higher in this group of studies. Such is, in fact, exactly the case.

It may be of some significance that when the factor of time is eliminated from each of the three basic series of Labor, Capital, and Product, and the deviations from the trends are studied (as in Series IV), that the true value of k for the period of 1899-1922 is reduced to .63. This is identical with the average value of k for the six years for which inter-industry studies were made.

It may also be of some significance that in three of the four time

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earners, salaried employees, supervisory officials, firm members, and working proprietors; (2) Capital (C) = total fixed and working capital; (3) Product (P) = gross sales value minus (a) cost of raw materials, (b) cost of fuel, heat, power, and rent, (c) taxes and insurance payments, (d) amounts paid to contractors, (e) cost of repairs, (f) sundries. No deduction has been made for the depreciation of fixed capital except that included under the heading of "repairs." For earlier studies on four of these years see Gunn and Douglas, "The Production Function for American Manufacturing for 1919," *Am. Econ. Rev.*, Vol. XXXI (Mar., 1941) pp. 67–80; Gunn and Douglas, "The Production Function for American Manufacturing for 1914," *Jour. Pol. Econ.*, Vol. L (Aug., 1942), pp. 595–602; Bronfenbrenner and Douglas, "Cross-Section Studies in the Cobb-Douglas Function," *Jour. Pol. Econ.*, Vol. XLVII (Dec., 1939), pp. 761–85; Daly, Olson and Douglas, "The Production Function for Manufacturing in the United States in 1904," *Jour. Pol. Econ.*, Vol. LI (Feb., 1943), pp. 61–65. A more complete description of the methods and results for 1889 will shortly be published by Miss Estelle Mass.

studies and in five of the six cross-section studies, the sum of k and j is slightly less than unity. While this by no means establishes the reality of true diminishing returns, since the differences between $k + j$ and unity are well within the range of the standard errors, there is at least a faint suggestion to that effect. It is possible that American manufacturing industry during this period may have exceeded the optimum size and that the desire for the power and prestige which is attached to bigness may have caused firms to be conducted on a larger scale than that which was justified by the most efficient combination of the factors of production.

While all due caution in drawing conclusions should be observed, it would seem that the most likely long-run norm for k during the period covered was between .63 and .64; and for j was approximately .34. This would mean that a change of one per cent in the quantity of labor (unaccompanied by any change in the quantity of capital) would normally result during this period in a change in the same direction of about sixty-three or sixty-four hundredths of one per cent in the quantity of product, and that similarly a change of one per cent in quantity of capital (unaccompanied by any change in the quantity of labor) would normally result, during this period, in a change in the same direction of about thirty-four hundredths of one per cent. If both factors of production were increased by one per cent, then the total product would normally increase during this period by from ninety-seven to ninety-eight hundredths of one per cent.

If we disregard the slight suggestion of decreasing returns and treat the most probable sum of the exponents as equal to unity, then an increase of one per cent in the quantities of both labor and capital would normally result in a corresponding increase of one per cent in product. A one per cent increase in the quantity of labor alone would normally be accompanied, during this period, by an increase of approximately two-thirds of one per cent in product and an increase of one per cent in the quantity of capital alone would normally be accompanied by an approximate increase of one-third of one per cent in the product. Perhaps this is as close a tentative conclusion as we should draw for this period although further studies may lead to some revision of these results.

Since under these conditions (*i.e.*, $k + j = 1.0$) the elasticity of the marginal productivity curves for a given factor is equal to the reciprocal of the exponent for the other factors, that is $e_L = \frac{1}{1-k}$ and $e_C = \frac{1}{1-j}$, it follows that the approximate elasticity of the normal marginal pro-

ductivity curve for labor during this period would seem to be not far from 3/2 and for capital, to be around 1.5[17]

Let us now turn to the examination of the two time series and nine cross-section studies which have been made for Australia, and which are summarized in Table II, with its accompanying notes. In the Victorian time study, k has a value of .84 and j of .23, while in the New South Wales study, the value of k is .78, and that of j is .20. It should be noticed, however, that the respective standard errors of k and j are quite high and that the values of k under the original formula ($P = bL^kC^{1-k}$) vary somewhat from those obtained under the second formula.

As we would expect from the reasons which have been given, the values of k in the nine cross-section studies for Australia are somewhat lower. The combined average of the k's was .60 and of the j's was .37. Their average sum was, therefore, .97. Here it will be observed that we get identical results with either formula since the average of the k's under formula (1) is also .60. It should also be noted that the values of k are from 8 to 14 times and the j's from 3 to 10 times their standard errors.

The results for the five Commonwealth studies differ somewhat from those for the separate states, having somewhat lower k's and higher j's. Thus, in the Commonwealth, the average of the k's is .55, with a spread in individual years between .49 and .64, while the average for the four state studies is .65. On the other hand, the j's average .43 in the Commonwealth, as contrasted with .20 in the state studies.[18] After the text

[17] The marginal productivity of labor is

$$\frac{\partial P}{\partial L} = \frac{k}{L}P = \frac{k}{L}bL^kC^j = MP_L.$$

The elasticity of the marginal productivity curve for labor is then defined as

$$\eta = \frac{1}{\frac{(MP_L)}{L}} \cdot \frac{MP_L}{L} = \frac{1}{\frac{k(k-1)P}{L^2}} \cdot \frac{\frac{kP}{L}}{L},$$

then

$$\eta = \frac{1}{k-1}.$$

The flexibility of the marginal productivity curve for labor is defined as the reciprocal of the elasticity of this curve or

$$\phi_L = \frac{1}{\eta} = k - 1.$$

[18] The values of k and j are each relatively large in relation to their standard errors.

TABLE II.—THE VALUES OF THE PRODUCTION FUNCTION FOR MANUFACTURING IN AUSTRALIA

Years		N	$P=bL^kC^j$						$P=bL^kC^{1-k}$	
			k	σ_k	j	σ_j	$k+j$	b	k	σ_k
A. Time series								.71		
Victoria[a]	1907–29	22	.84	±.34	.23	±.17	1.07	.71	.71	±.07
New South Wales[b]	1901–27	26	.78	±.12	.20	±.08	.98	1.14	.86	±.05
B. Cross-section or inter-industry studies										
Australia[c]	1912	85	.52	±.05	.47	±.05	.99	15.87	.52	±.04
Australia[c]	1922–23	87	.53	±.05	.49	±.05	1.02	16.49	.52	±.05
Australia[c]	1926–27	85	.59	±.05	.34	±.04	.93	77.26	.64	±.05
Australia[c]	1934–35	138	.64	±.04	.36	±.04	1.00	39.79	.64	±.04
Australia[c]	1936–37	87	.49	±.04	.49	±.04	.98	21.57	.50	±.04
Victoria[d]	1910–11	34	.74	±.08	.25	±.11	.99	42.87	.75	±.08
Victoria[d]	1923–24	38	.62	±.08	.31	±.10	.93	96.93	.61	±.08
Victoria[d]	1927–28	35	.59	±.07	.27	±.09	.86	207.49	.60	±.05
New South Wales[d]	1933–34	125	.65	±.04	.34	±.03	.99	53.70	.66	±.03
Average all Commonwealth and state studies			.60		.37		.97		.60	
Average Commonwealth studies only			.55		.43		.98		.56	
Average state studies only			.65		.29		.94		.66	

[a] The Victorian index numbers for Labor, Capital, and Product from which the results were computed, were constituted as follows: (1) Labor (L) = average number of persons employed including wage earners, salaried employees, supervisory officials, and working employers; (2) Capital (C) = fixed capital reduced to dollars of constant purchasing power but excluding land values and working capital; (3) Product (P) = index of physical production using 1911 value weights. See Handsaker and Douglas, "The Theory of Marginal Productivity Tested by Data for Manufacturing in Victoria," *Quart. Jour. Econ.*, Vol. LII (Nov., 1937), pp. 1–36.

[b] The New South Wales study is based on series for Labor, Capital, and Product, which are virtually identical in their definition with those of Victoria. The capital index differs from that constructed earlier by Mr. Director in that it does not provide for the replacement at differing price levels for the estimated depreciation on capital. For the Director study, see Douglas, *The Theory of Wages*, pp. 167–172.

[c] In the Commonwealth cross-section studies, the terms are defined as follows: (1) Labor (L) = average number employed of wage earners and salaried employees but generally excluding working proprietors (except in 1934–35); (2) Capital (C) = value of plant and machinery, buildings, and land, but excluding working capital. The exclusion of working capital is the chief dissimilarity between this series and the definition of total capital used in the case of the United States and Canadian cross-section studies. We will try to revise the Australian capital figures to include working capital but this may be difficult. (3) Product (P) = value added by manufacturing. For all the years except 1934–35, this was defined as gross sales value minus (a) cost of materials used, (b) cost of fuel and light, and (c) cost of replacing tools and repairs to plants. In the 1934–35 study estimated deductions were made for fire insurance and workmen's compensation premiums, and also for estimated depreciation rates on the various types of capital goods used based on the rates estimated in the Production Bulletin, No. 29, *Commonwealth Bureau of Census and Statistics*. For a further discussion of these issues, see Gunn

for this article had been prepared, Keith Campbell and George Brinegar, in their Queensland study for 1937-38, found k to have a value of .58 and j one of .45.[19]

Since the sum of the exponents tends to be slightly less than unity, there is an added slight suggestion of true diminishing returns. But here again, since the difference is less than the standard errors of estimate, we should be chary about drawing definite conclusions.

If we choose .60 as the most probable "normal" value of k and .37 as the corresponding value of j, this would mean that the approximate elasticity of the marginal productivity curve in Australia for labor was somewhere around 2.7 and for capital of about 1.7.

The third set of results which we should consider are those for New Zealand, Canada, and South Africa. These are shown in Table III. Using the formula of k and $1-k$, Max Brown found for New Zealand a value of .51 for k for the period 1915-1935,[20] and when we reworked the Brown series with the second formula, we found values of .42 for k and .49 for j. It is interesting that in the single cross-section study which has been made for New Zealand, namely, that made by Williams for 1938-39, k has a value of .46 and j of .51.[20a] In the four Canadian studies which we made for so-called "normal" years, the k's range between .43 and .50, with an average of .47, and the j's between .48 and .58, with an average of slightly more than .52. There is a considerable degree of steadiness in these results, which seem to indicate an elasticity of the marginal productivity curve for labor in that country as slightly less than 2.0 for the years studied and of capital as slightly more than that figure.

One of the most interesting studies which has been made is that by G. W. G. Browne for South Africa for 1937-38. Taking the seventeen main groups of industry and treating all labor as homogeneous, Browne

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and Douglas, "The Production Function for Australian Manufacturing," *Quart. Jour. Econ.*, Vol. LVI (Nov., 1941), pp. 108–129.

[d] The definitions of terms in the studies for the separate Australian states were substantially similar to those in the four Commonwealth studies, except that (1) working proprietors were included in the definition of labor; (2) the estimated value of land was deducted from the capital figures; (3) deductions were made from the value of product for (a) the estimated cost of local and state and federal taxes, (b) estimated fire insurance and workmen's compensation premiums, and (c) allowances for depreciation upon buildings, plant, and machinery. These were also the methods used in the Commonwealth Study of 1934–35. See Gunn and Douglas, "Further Measurements of Marginal Productivity," *Quart. Jour. Econ.*, Vol. LIV (May 1940), pp. 399–428.

[19] See an unpublished manuscript study by Keith O. Campbell and George K. Brinegar, *The Production Function for Queensland Manufacturing in 1937-38* (1947).

[20] Brown omitted the war years of 1916-17 and 1917-18.

[20a] In the cross-section study just completed for New Zealand, 1926-27, k has a value of .48 and j of .53.

TABLE III.—THE VALUES OF THE PRODUCTION FUNCTION FOR MANUFACTURING IN NEW ZEALAND, CANADA, AND SOUTH AFRICA

Years		N	$P=bL^kC^j$						$P=bL^kC^{1-k}$	
			k	σ_k	j	σ_j	$k+j$	b	k	σ_k
A. Time studies										
New Zealand[a] (Brown)	1915–16 1918–35	18	.42	±.11	.49	±.03	.91	2.03	.51	±.03
New Zealand[b] (Williams)	1923–40	18	—	—	—	—	—	—	.54	±.02
B. Cross-section or inter-industry studies										
South Africa[c] (Browne)	1937–38	17	.66	±.08	.32	±.08	.98	54.48	—	—
South Africa[d] (Browne)	1937–38	85	.65	—	.37	±.08	1.02	55.25	—	—
Canada[e]	1923	167	.48	±.04	.48	±.04	.96	48.53	.52	±.04
Canada[e]	1927	163	.46	±.04	.52	±.04	.98	33.04	.48	±.04
Canada[e]	1935	165	.50	±.04	.52	±.04	1.02	22.23	.48	±.04
Canada[e]	1937	164	.43	±.04	.58	±.04	1.01	15.42	.42	±.04
New Zealand[f] (Williams)	1938–39	61	.46	—	.51	—	.97	.73	—	—

[a] Dr. Max Brown, in his study, *The Relation Between Capital and Labour in New Zealand* (an unpublished doctoral dissertation at Cambridge University), defined Product (P) as the total money value of production divided by the price index of locally produced goods. His index of Labor (L) was one of total *man-hours* worked, *i.e.*, numbers employed multiplied by the length of the standard working week plus or minus the hours of overtime worked or short time suffered in the various years. The index of Capital (C) was the value of buildings, plant, and machinery (*i.e.*, fixed capital) with the annual increments of investment deflated by a price index of the cost of capital goods. We have fitted the function $P=bL^kC^j$ to the Brown data as well as the $P=bL^kC^{1-k}$ formula which Brown originally used.

[b] Professor Williams computed his indexes as follows: (1) Product (P) = (a) value added by manufacturing (*i.e.*, gross value minus cost of materials, fuel, and power), divided by (b) the price index of locally produced goods; (2) Capital (C) = initial value (1919–20) of land, buildings, machinery, and plant *minus* depreciation actually written off each year, and *plus* the money value of additions to capital in each year adjusted for changes in the index, number of prices for buildings and construction; (3) Labor (L) = number of persons employed. See J. W. Williams, "Professor Douglas' Production Function," *Econ. Record*, Vol. XXI (1945), pp. 55–63.

[c] Professor Browne defined his units as follows: (1) Product (P) = net value added by manufacturing or the gross value of output minus cost of materials, fuel, light, and power; (2) Labor (L) = average number of employees, including wage earners, salaried staff, managers, accountants, working proprietors, and persons regularly employed in their homes; (3) Capital (C) = the value of land, buildings, machinery, plant, and tools (*i.e.*, *fixed* capital only, with working capital excluded). See G. W. G. Browne, "The Production Function for South African Manufacturing Industry," *South African Jour. Econ.*, Vol. XI (1943), p. 259.

[d] This study differed from the former in that it was based on a more minute classification of industries and that it also separated white and black laborers and treated each as a separate factor of production. The value of k given is the sum of the k for white labor (.45) and for native labor (.20). See Browne, *op. cit.*, pp. 260–61. The value of σ_k could not be obtained by adding the σ_k of the exponents for native and white labor.

[e] The statistical series used were: (1) Labor (L) = average number of employed wage earn-

found the value of k was .66, and that for j, .32. When he made white and black labor separate factors of production and broke manufacturing down into eighty-five industries, the sum of the two exponents for labor amounted to .65. While we cannot rely too much upon only one study, it is of interest that his results were substantially the same as those which we obtained on the average for the United States for the period 1889-1919 and not far from the Australian results. This would be equivalent to an elasticity of approximately 3.0 for the marginal productivity curve for labor and of 1.5 for the marginal productivity curve for capital.

If we try to summarize our results, we do find a relatively close agreement between the values of k and j which we obtain from the cross-section studies for the United States, Australia, and South Africa. But we also find differences in the values of k and j (1) between Canada and New Zealand, on the one hand, and the United States, upon the other, with the former having lower k's and higher j's than the United States, and (2) between years within the same country. This is to be expected, as I pointed out long ago in a section of my *Theory of Wages*.[21] But underneath all these differences, it is submitted that there has been *for the periods studied,* a substantial core of stability within countries and that differences in technique, differences in the relative importance of given industries, and differences in the ratios of capital to labor may account for such deviations in the values of the exponents as exist.[22]

[21] Douglas, *The Theory of wages,* pp. 203-4.

[22] The economic and statistical meaning of b deserves to be considered.

A. In the four time series for the United States, the values of b under formula (1) are closely approximate to unity. For the United States the values are the same for each of the four series.

	b		b
Series I	1.01	Series III	1.01
Series II	1.01	Series IV	1.01

(Footnote 22 continued on next page)

ers, salaried workers, etc.; (2) Capital (C) = total capital used, *i.e.*, (a) fixed capital in the form of land, buildings, plant, tools, and machinery plus (b) working capital including materials, goods in process, and goods in storage. The inclusion of working capital makes the results comparable with the cross-section studies for the United States but differentiates them from the series used in Australia, New Zealand, and South Africa. (3) Product (P) = gross sales value *minus* cost of materials, fuel, electricity, etc., used. See Patricia Daly (Ogburn) and Paul H. Douglas, "The Production Function for Canadian Manufactures," *Jour. Am. Stat. Assoc.*, Vol. XXXVIII (1943), pp. 178–86.

[f] Professor Williams defined his terms as follows: (1) Labor (L) = number of persons engaged; (2) Capital (C) = value of land, buildings, plant, and machinery, *i.e.*, *fixed* capital. (3) Product (P) = gross sales value of product minus cost of materials, fuel, and power. See J. W. Williams, *op. cit.*, p. 59.

It is submitted that the results are, on the whole, corroborative. If they were purely accidental, as some have charged, they would show widely varying results. The fact that on the basis of fairly wide studies there is an appreciable degree of uniformity, and that the sum of the

For Victoria, the value of b was .97 and for New South Wales, 1.02. In all these cases, b represents the value of the intercept with the functional plane of theoretical product merely moved up or down by the small difference between the values of b and unity. In the time series, of course, we are dealing with index numbers which show relative changes, not absolute values.

B. Under formula (2) (*i.e.*, $P = bL^kC^j$) b deviates in a greater degree from unity because of the greater degree of freedom given to the exponent for capital. Here the values for the United States are:

	b		b
Series I	.84	Series III	1.12
Series II	1.38	Series IV	1.35

For Victoria b is .71 and for New South Wales, .97.

C. In the cross-section or inter-industry studies, b still represents the intercept but it is also a conversion factor which translates the number of employees and dollars of invested capital into *dollars* of net value product. As in the case of the time series based on index numbers, b is generally higher under formula (2) when the values of j are independently determined than under formula (1). It also tends to move in some direct ratio with changes in the general price level, being generally higher in those years when the price level is higher and *vice versa*. There are, however, occasional exceptions to this rule. These tendencies are shown in the following tables for the United States:

	Values of b	
Year	Formula (1)	Formula (2)
1889	28.58	58.34
1899	69.56	106.43
1904	79.62	120.23
1909	98.63	90.99
1914	66.22	81.66
1919	258.82	244.21

For the Commonwealth of Australia the corresponding values are

	Values of b	
Year	Formula (1)	Formula (2)
1912	14.79	15.87
1922-23	19.72	16.49
1926-27	41.50	77.26
1934-35	37.15	39.79
1936-37	17.99	21.57

It will, of course, be remembered that Australian prices and values are expressed in terms of pounds.

For Canada, the values are

	Values of b	
Year	Formula (1)	Formula (2)
1923	38.55	48.53
1927	28.51	33.04
1935	24.38	22.23
1937	16.48	15.42

I hope to give a fuller treatment of the significance of the b term in the regression equations in a book on *The Theory of Production* which I hope shortly to publish with Miss Grace Gunn.

exponents approximates unity, fairly clearly suggests that there are laws of production which can be approximated by inductive studies and that we are at least approaching them.

And yet it is proper to chronicle the fact that we have obtained some negative results. One persistent area of difficulty in these last months has been the Massachusetts time series. We tried to improve on Professor Cobb's series of capital and product with the result that the more we refined the basic series, the more nonsensical the results became. We are still working on this problem, but at the moment we certainly do not see the light. Secondly, it is disconcerting to observe that if we shorten our time periods by dropping off a number of terminal years, we appreciably alter our results. We observed this fact earlier, as did Professor Williams in New Zealand, but this paradox has been most manifest when we omit the war years from 1916 on, in our United States time series. Finally, we have attempted various interspatial studies in which we use individual states as separate observations. We have personally had no success with these attempts. The most ambitious study of this latter nature has, however, been made by my friend and former associate, Ernest Olson, and will be presented to this Association later in these meetings. I do not wish to anticipate the results of his paper, but I think it is proper to say that Mr. Olson has been able to develop a formula which makes differences between countries in their *real* national income a mathematical function of (1) the total energy used, (2) the numbers of the working population, (3) the quantity of livestock reduced to comparable units, and (4) the amount of land—and he has derived exponents which indicate the comparative importance of each. There is still much to be done in this direction and some hard puzzles remain to be solved, but Mr. Olson's comparative success offers us some hope that we may not face a completely blank wall in working with this third method for deriving the laws of production.

Finally, I should like to point out that in the case of the United States, we were compelled because of lack of capital figures, to stop with 1922 in our time series and with 1919 in our cross-section studies. We have, therefore, not been able to cover the very perplexing period of 1920-40. I am doubtful for two reasons whether we can develop a satisfactory production function for the United States during this period: (a) In spite of the excellent work of the National Bureau of Economic Research, we still lack adequate data for this period on the capital *available* for use; and (b) there was wide variation between the decades in the degree to which the available capital was *actually used*. During the 'twenties, capital was quite fully employed, but during the

'thirties a large proportion of this equipment lay idle. Variations in the degree to which available capital was utilized created some difficulties within the ordinary business cycles which prevailed between 1899 and 1919 when each of the four phases of the cycle did not last for more than one or two years. But the period between the two wars was quite extraordinary in that we had high prosperity from 1922 to the fall of 1929 and that we did not fully recover from the collapse which then set in until 1941. It was this fundamental difficulty which prevented one of my students, Mr. Leonard Felsenthal, from developing a satisfactory production function for Germany in the inter-war period. I shall, therefore, await with sympathetic interest the paper on this subject which Mr. Burton Wall is to give tomorrow.

IV. *The Production Function as Based on Plant Averages Rather than Industry Aggregates*

The inductive values which have thus far been developed in the cross-section or inter-industry studies have been based on industry aggregates, namely the totals of workers, capital, and net values added by manufacturing in each industry. This method is somewhat disconcerting to those who are accustomed in their *a priori* reasoning to start with the theory of production for the individual firm and who then move to a model for a given industry but who shy away from developing a theory of production for the economy as a whole or from the manufacturing sector of that economy. Such theorists probably believe that we are starting at the wrong end and that we should begin instead with the individual firm rather than the whole manufacturing sector of the economy and that we should consider the production function within these units rather than deal with inter-industry and aggregate functions.

There are two answers to this position. The first is that I should be very glad indeed to make studies of individual firms if the necessary data were available. But statistics on the changing quantities of labor and capital which are used over a period of time by individual firms, and the amounts of product which are thus turned out by them, are some of the most carefully guarded secrets of business. I am reluctant to believe that we should stop all our investigations until all of these facts are forthcoming for a multitude of firms.

Secondly, I personally see no reason why we cannot approach this problem from either end and study the macrocosm as well as the microcosm. No one, for example, in the physical sciences would propose that we give up using the telescope because the microscope had not yielded all its secrets. Why should we not, therefore, study the

economy as a whole as well as speculate about the individual firm, particularly since a knowledge of the former throws a great deal of light upon the problems of the latter?

In the meantime, however, we should all welcome such brilliant studies of the production function for individual firms as that which will shortly be published by my friend and colleague, Professor William H. Nicholls, for a meat-packing plant.[22a] Moreover, if we could get the figures for specific firms and plants *within* given industries for a specific year, we would then be able to develop production functions for each of the main industries with each firm serving as an observation. But the census has always been obligated to conceal the identity of the specific firms which report to it and can only publish totals by industries and geographical subdivisions. This fact prevents us, at present, from developing such studies, although it is barely possible that either the Census Bureau itself or employers' associations could carry them on, were they once convinced of their value. This cannot, however, be done at present.

To my mind, therefore, we are at present forced to work primarily with industry aggregates. But there is one important refinement which we can and should introduce. That is to divide the total number of workers, the aggregate amounts of capital, and the total net value of the product in each of the various industries by the number of plants in that industry. This will give us *plant averages* for given industries rather than industry aggregates as the individual observations[23] and from these we can derive another variant of the production function.

We have made such studies for each of the six years which were covered for American manufacturing and for two of the Australian studies and these results are embodied in Table IV.

It will thus be seen that while we obtained closely similar results in Australia by the two methods, nevertheless, clear differences developed in the case of the United States. In every year the value of k in our American studies was substantially less under the method of plant averages than it was under the method of industry aggregates. The amount of this difference ranged between 5 and 6 points, as in 1904 and 1909, to 15 points in 1889. On the other hand, the values of j were always higher under the methods of plant averages than under that of industry aggregates but the amounts of these differences were much less. As a result, the combined values of $k + j$ are less by from 3 to 8 points

[22a] William H. Nicholls, *Labor Productivity Functions in Meat Packing*, to be published by University of Chicago Press, 1948.

[23] This is not quite the same as the so-called "representative" firm because many firms operate multiple plants.

on the plant average basis than they are when industry aggregates are used and, indeed, average only .92. This gives an unmistakable indication of true diminishing returns so far as the size of individual

TABLE IV.—A COMPARISON OF THE VALUES OF k AND j OBTAINED BY THE METHOD OF PLANT AVERAGES WITH THOSE OBTAINED BY THE METHOD OF INDUSTRY AGGREGATES ($P=bL^kC^j$)[a]

Year	Values According to Method of Plant Averages			Difference (In Points) from Those Obtained by Methods of Industry Aggregates		
i	k	j	$k+j$	k	j	$k+j$
United States						
1889	.36	.50	.86	−.15	+.07	−.08
1899	.52	.36	.88	−.10	+.03	−.07
1904	.60	.32	.92	−.05	+.01	−.04
1909	.57	.37	.94	−.06	+.03	−.03
1914	.52	.41	.93	−.09	+.04	−.05
1919	.66	.32	.98	−.10	+.07	−.03
Australia Commonwealth						
1934–35[b]	.60	.38	.98	+.04	−.04	.00
Victoria						
1910–11	.76	.26	1.02	+.02	+.01	+.03

[a] The formula, $P=bL^kC^{1-k}$, gives identical results using aggregate and per plant data.

(1) $$P = bL^kC^{1-k}$$

(2) $$\frac{P}{N} = b\left(\frac{L}{N}\right)^k\left(\frac{C}{N}\right)^{1-k} = b\frac{L^k}{N^k}\frac{C^{1-k}}{N^{1-k}}$$

$$\frac{P}{N} = \frac{b}{N}L^kC^{1-k}.$$

Multiplying both sides by N, we get formula (1).

[b] Figures refer to Commonwealth of Australia 1934-35 A, which used the studies of C. H. Wickens, "The Commonwealth Statistical Allocation of Factory Output," *Econ. Record* (1929), pp. 226-33. The values of k and j for the industry aggregates were .56 and .42, respectively. The results of the plant averages for the Commonwealth for the years 1912, 1922-23, 1926-27, 1936-37 were previously published. It was found that the values of k and j did not change greatly. Only one value of k, that for 1922-23, differed from the aggregate k, by an amount greater than σ_k. For further discussion, see Gunn and Douglas, "The Production Function for Australian Manufacturing," *Quart. Jour. Econ.*, Vol. LVI (Nov., 1941), pp. 108-29.

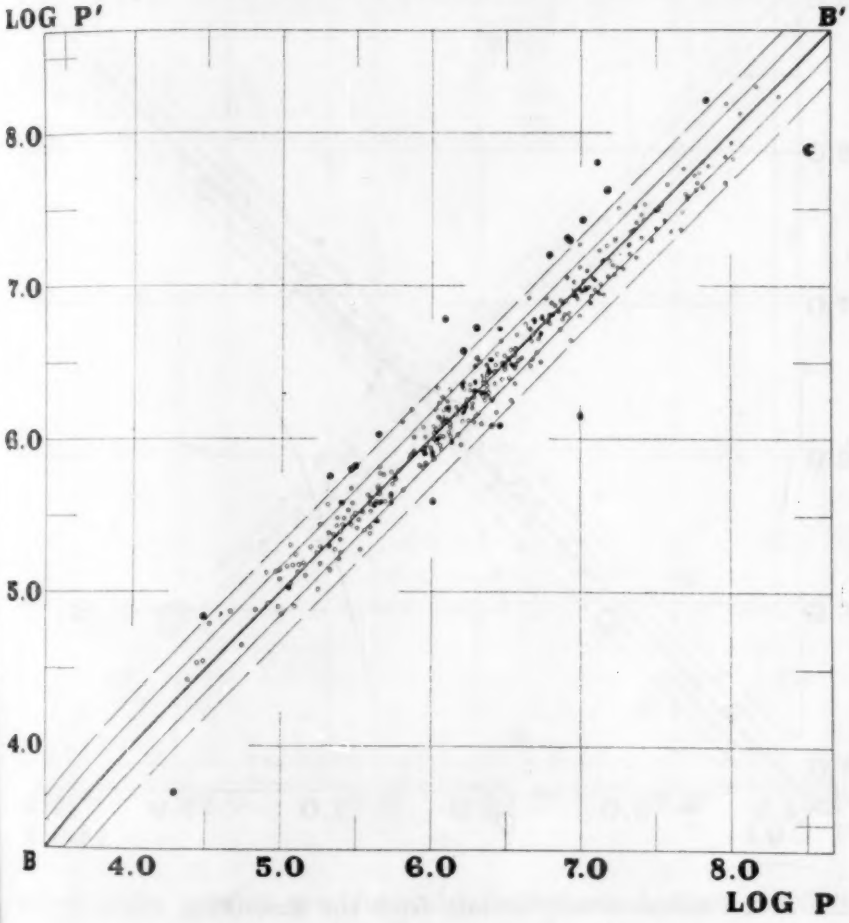
plants is concerned. While much more study is needed to develop and to clarify this point, it is suggested that quite possibly American plants during this period were in practice developed beyond the point of maximum efficiency. Whether or not the differences between the respective $k+j$'s can be taken as a coefficient of managerial megalomania, I shall have to leave to the psychiatrists.[24]

[24] If this is a psychiatric problem, we can take consolation in the fact that the disease was apparently less acute in 1919 than in 1889.

V. *Do the Deviations of the Actual Products from Those Which We Would Theoretically Expect from the Formula Tend to Strengthen or Weaken Belief in the Validity of the Production Function?*

An important test of our function is the degree to which the values of the product which we would expect from the quantities of labor

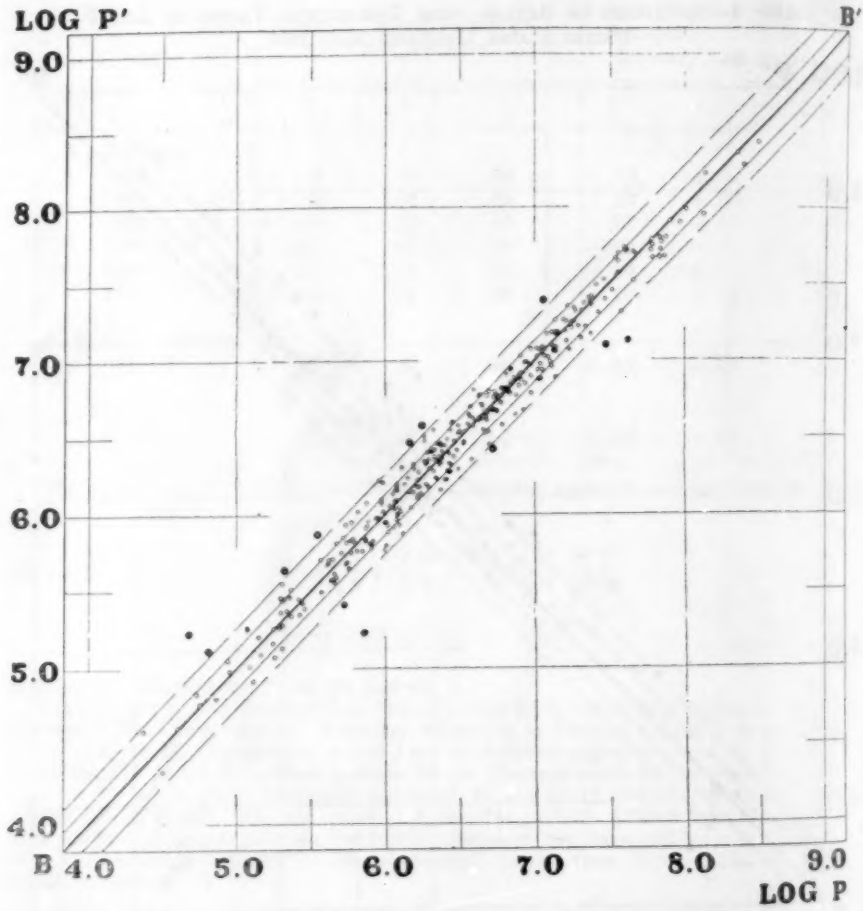
CHART I—DEVIATIONS OF ACTUAL FROM THEORETICAL VALUES OF LOG P
UNITED STATES MANUFACTURING 1889



and capital available, tend in practice to be realized in terms of actual product in each of the various industries during the given years. We have made these tests and I should like to present our results in a series of charts and summary tables. As a first step, we computed

the standard errors of estimate (S) for each study. Under a normal distribution of cases with the only departures of the actual from theoretical values being those caused by random errors of measurement and of sampling, we would expect that in 68.3 per cent of the cases

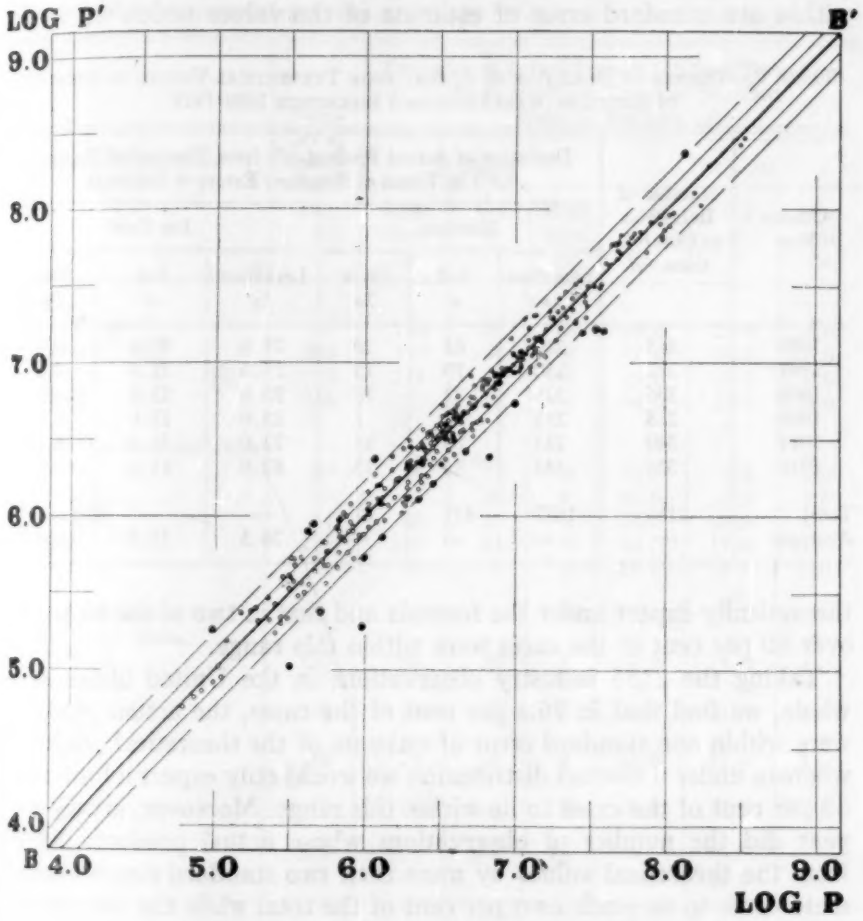
CHART II—DEVIATIONS OF ACTUAL FROM THEORETICAL VALUES OF LOG P
UNITED STATES MANUFACTURING 1899



the actual values would deviate from the theoretical values by less than one standard error of estimate, and that in 95 per cent of the cases the actual values would deviate from the theoretical values by less than two such standard errors. In only one per cent of the cases would the actual values deviate by more than three standard errors of estimate. Then in our charts of the cross-section or inter-industry

studies, we have plotted the logs of the theoretical or expected products on the vertical scale and of the actual products on the horizontal scale. Since the values of scale are the same on both axes, the line BB′ (with a slope of unity) is the locus of all those points for which the theoretical

CHART III—DEVIATIONS OF ACTUAL FROM THEORETICAL VALUES OF LOG P
UNITED STATES MANUFACTURING 1904



values of the product are identical with the actual values. In these studies for a given year, it will be remembered that each industry constitutes a separate observation.

The degree of departure of the actual from the theoretical values is, therefore, shown by either the horizontal or the vertical distance of a given point from the line BB′. We have, therefore, marked out on each

side of the line BB′ two other pairs of lines at the respective distances of one and two standard errors of estimate. An inspection of these charts for American manufacturing for the years 1889, 1899, 1904, 1909, 1914, and 1919, (Charts I, II, III, IV, V, and VI) show that in practice the actual values tend to be close to the line BB′, and a statistical analysis of these variations is given in Table V. Here it will be seen that in every year more than 70 per cent of the actual values were within one standard error of estimate of the values which we would

TABLE V.—DEGREE OF DEVIATION OF ACTUAL FROM THEORETICAL VALUES OF PRODUCT IN AMERICAN MANUFACTURING INDUSTRIES 1889–1919

Census Year	Number of Industries or Observations—N	Deviation of Actual Product (P) from Theoretical Product (P') in Terms of Standard Errors of Estimate					
		Number			Per Cent		
		Less than 1σ	1–2 σ	Over 2σ	Less than 1σ	1–2 σ	Over 2σ
1889	363	280	63	20	77.0	17.0	6.0
1899	332	250	70	12	75.0	21.0	4.0
1904	336	236	82	18	70.0	25.0	5.0
1909	258	215	38	5	83.0	15.0	2.0
1914	340	243	83	14	72.0	24.0	4.0
1919	556	453	85	18	82.0	15.0	3.0
Total	2185	1677	421	87	—	—	—
Averages	—	—	—	—	76.5	19.5	4.0

theoretically expect under the formula and that in two of the six years, over 80 per cent of the cases were within this range.

Taking the 2185 industry observations in the United States as a whole, we find that in 76.5 per cent of the cases, the actual products were within one standard error of estimate of the theoretical products, whereas under a normal distribution we would only expect a little over 68 per cent of the cases to lie within this range. Moreover, in only one year did the number of observations whose actual products varied from the theoretical values by more than two standard errors of estimate come to as much as 6 per cent of the total while the average for all 2185 observations was 4 per cent as compared with the 5 per cent which we would normally expect.[25]

In our American studies, the distribution of the actual values about

[25] Incidentally, instead of 22 cases or 1.0 per cent of the total, which would normally expect to deviate by more than three standard errors of estimate, we find only 16 observations or three-quarters of one per cent in this class.

the theoretical values is, therefore, somewhat *closer* than what we would normally expect on the basis of random errors of sampling and of measurement. Belief in the reliability of the formula as a description of production during this period is, therefore, strengthened, rather than weakened.

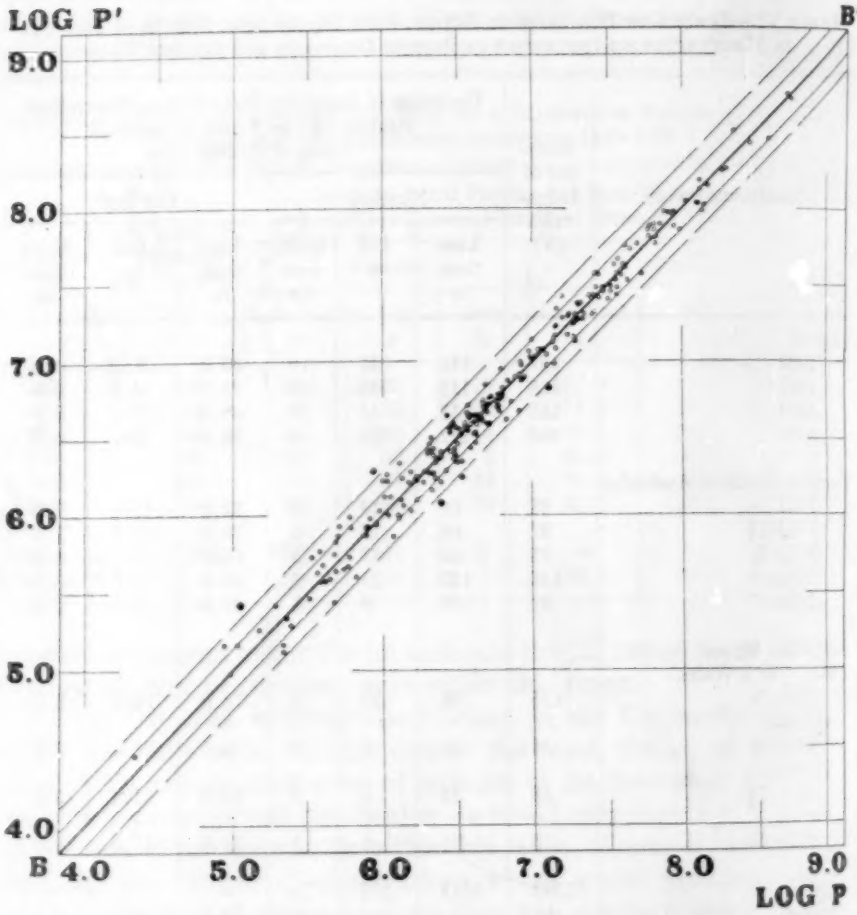
TABLE VI.—DEGREE OF DEVIATION OF ACTUAL FROM THEORETICAL VALUES OF PRODUCT IN MANUFACTURING INDUSTRIES OF BRITISH DOMINIONS FOR SPECIFIC YEARS

Country and Year	Number of Industries (N)	Deviation of Actual Product (P) from Theoretical Product (P') in Terms of Standard Errors of Estimate (σ)					
		Number			Per Cent		
		Less than 1σ	1–2 σ	More than 2σ	Less than 1σ	1–2 σ	More than 2σ
Canada							
1923	167	116	41	10	69.0	25.0	6.0
1927	163	115	40	8	71.0	24.0	5.0
1935	165	113	45	7	69.0	27.0	4.0
1937	164	122	33	9	74.0	20.0	6.0
Commonwealth of Australia							
1912	85	66	13	6	78.0	15.0	7.0
1922–23	87	66	15	6	76.0	17.0	7.0
1926–27	85	65	17	3	76.0	20.0	4.0
1934–35	138	110	23	5	80.0	17.0	3.0
1936–37	87	70	9	8	81.0	10.0	9.0
Australian States							
New South Wales							
1933–34	125	98	22	5	78.0	18.0	4.0
Victoria							
1910–11	34	26	7	1	76.0	21.0	3.0
Victoria							
1923–24	38	32	4	2	84.0	11.0	5.0
Victoria							
1927–28	35	26	6	3	74.0	17.0	9.0
Total	1373	1025	275	73	—	—	—
Average	—	—	—	—	74.7	20.0	5.3

Let us see from Table VI if these results are confirmed by an analysis of the deviations of the actual from the theoretical values in the thirteen cross-section studies which we have thus far made for the Dominions within the British Commonwealth of Nations. It will be noticed that out of the total of 1373 observations, 1025, or over 74 per cent deviated by less than one standard error of estimate from the theoretical values,

and that between 94 and 95 per cent deviated by less than two standard errors of estimate. The distribution of the observations in this sample is, therefore, somewhat better than that which we would expect

CHART IV—DEVIATIONS OF ACTUAL FROM THEORETICAL VALUES OF LOG P
UNITED STATES MANUFACTURING 1909



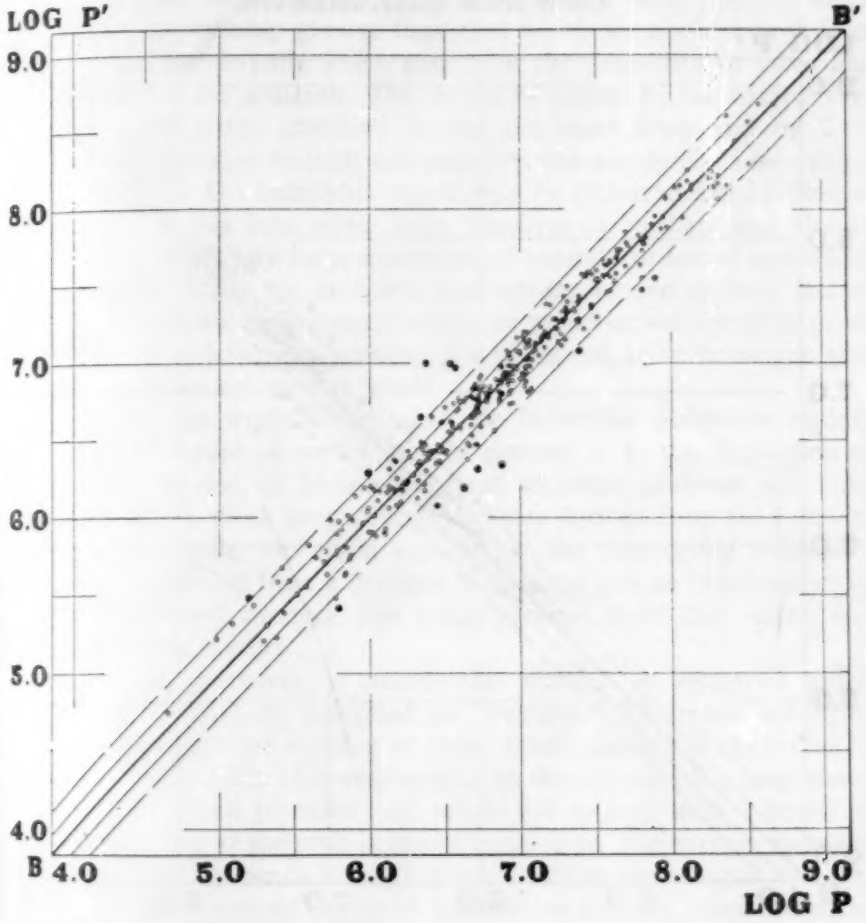
under normal conditions of random error. Credence in the production function would seem to be further reinforced.[25a]

The fact that we have, therefore, in practice, a somewhat closer distribution of the actual values about the line of the theoretical values

[25a] While charts showing the distribution of the individual products about the line of theoretical relationship have been prepared for the British Dominion, these are not published in this article because of considerations of space and expense. They were, however, shown in connection with the address.

under the formula than we would normally expect, is all the more striking in view of the fact that the values of the production function need not be the same within all industries or allied groups of industries.

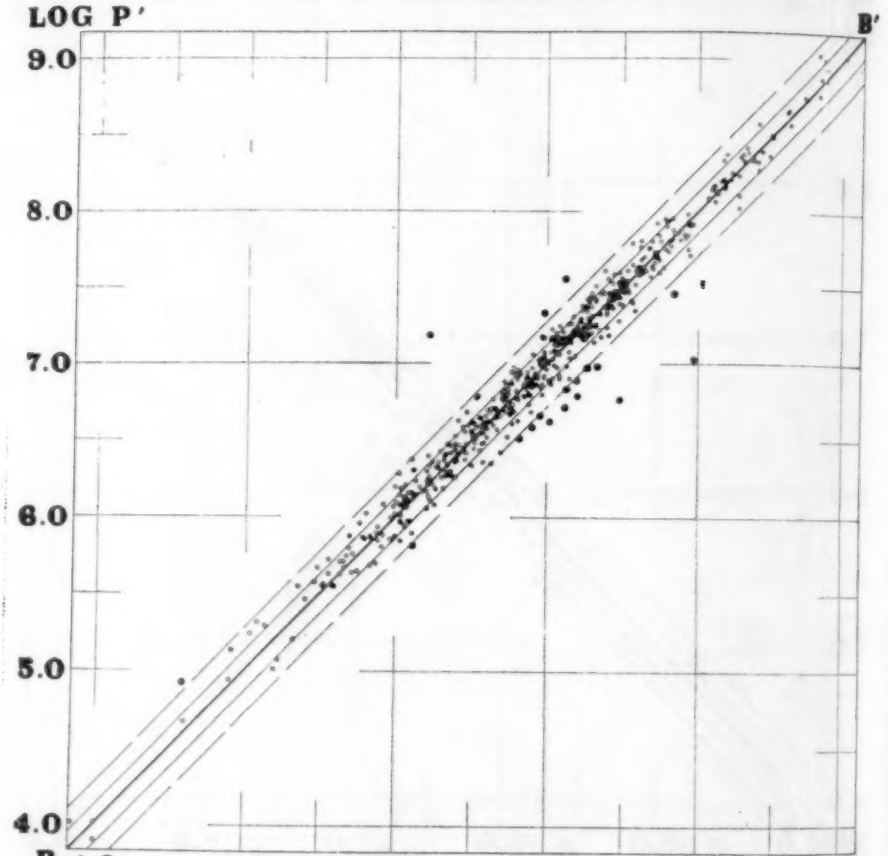
CHART V—DEVIATIONS OF ACTUAL FROM THEORETICAL VALUES OF LOG P
UNITED STATES MANUFACTURING 1914



As I have constantly pointed out during the last twenty years, there is no reason why the exponents of capital and labor should be constant for all periods and economies. As a matter of fact, we have already seen that they are not and that there is some variation between countries and years in the values of k and j. We would similarly expect some variation to exist as between groups of industries within a country at any given time. Thus the values of the production function for the

textile industries need not be the same as for the clothing group, while these might well differ from those prevailing in the food industries and be appreciably different from those in the iron and steel and heavy metals industries, etc. If, therefore, we could compute separate values

CHART VI—DEVIATIONS OF ACTUAL FROM THEORETICAL VALUES OF LOG P
UNITED STATES MANUFACTURING 1919



of k and j for each of the various main groups of manufacturing and compare the actual with the resulting theoretical products, we could doubtless find the resulting deviations to be appreciably less than those obtained when we treat all manufacturing as a whole. The fact that we do get such a good fit when we treat all of the industries as homogeneous is, therefore, all the more remarkable. It seems, further, to suggest that to the degree that the values of k and j do differ between groups of

industries, such differences tend to be more or less symmetrically distributed around the "normal" values which we have found in the given years for manufacturing as a whole.

A further analysis of the plus and minus deviations offers interesting suggestions. We would expect industries characterized by monopoly and by highly imperfect competition to have a value product which would be appreciably greater than that which we would expect from the production formula itself, and from the quantities of labor and capital which are available. This would be caused by the control over supplies and prices exercised by the dominant firms and by their ability to control or to limit entrance into the monopolized industries. Conversely, in the industries which may be characterized by "excessive" competition into which large numbers of workers and also in some cases, relatively large quantities of capital are forced and which consequently lower the marginal productivity of one or both factors appreciably below their general levels, we would expect the value product per unit of labor and possibly also of capital, to be below the general average for society as a whole.

Similarly, we would expect that the industries which are rapidly expanding because of an increase in demand or in the disposition of consumers income, or because of great technical progress, will have value products which are in excess of those derived from the formula. Conversely, again, we would expect that the contracting industries, which are suffering from a decrease in demand and an obsolescence of technique, would produce less value product than that which our formula would predict.

There are, moreover, a considerable number of industries which probably can best be described as "sweated." These are industries which have had large supplies of cheap labor, sometimes caused, as in the past, by an influx of immigrants or by the presence of a large number of women and juveniles who are forced to seek work because of the low earnings of the male heads of households. The average earnings in these industries tends to be appreciably below the national average, and if there is a normal degree of competition at work, these low earnings will commonly be translated into a lower sales price for the product than would normally be the case. The value product in these industries will, therefore, tend to be less than what would be shown under the formula for manufacturing as a whole.

We can test the relative truth of these hypotheses both by statistical analysis and also by identifying the specific industries where the deviations of the actual from the theoretical values are great. In analyzing the American deviations by years, as in Table VII, certain marked

differences appear between the results for the earliest year of 1889 and the years from 1904 on. From 1904 on, and particularly in 1914 and 1919, the big deviations were predominantly on the plus, and the minor deviations on the minus, side. Thus, in 1919, of the 18 industries where the deviations amounted to more than two standard errors of

TABLE VII.—AN ANALYSIS OF THE COMPARATIVE DEGREES OF PLUS AND MINUS DEVIATIONS OF ACTUAL FROM THEORETICAL PRODUCTS IN AMERICAN MANUFACTURING INDUSTRIES 1889–1919

Year	Number of Industries with Deviations of Less Than Two Standard Errors of Estimate		Number of Industries with Deviations of More Than Two Standard Errors of Estimate	
	Plus	Minus	Plus	Minus
1889	190	153	4	16
1899	166	154	5	7
1904	144	174	11	7
1909	122	131	3	2
1914	152	174	10	4
1919	230	308	16	2

estimate, 16 had their actual products in excess of the theoretical values, while in only two cases did they fall below. On the other hand, of the 538 industries in 1919 where the deviations amounted to less than two standard errors, 308 or nearly three-fifths, were below what would have been expected under the formula. For the three census years of 1909, 1914, and 1919, there were 29 industry observations where the actual products were more than two standard errors of estimate greater than the theoretical values and only 10 industry observations which were more than two standard errors less. Conversely, in these three years there were only 504 industries which had actual products which exceeded the theoretical values up to two standard errors as contrasted with 613 industries where the actual products fell below the theoretical by these amounts.

The general framework of these later results is approximately what we would expect on theoretical grounds. The monopolistic and expanding industries tend to absorb large quantities of purchasing power at the expense of the rest of the economy. They would, therefore, be expected to show wider profit margins than the general average and each combined dose of labor and capital would consequently tend to yield a greater dollar value than would normally be the case. The withdrawal of this purchasing power would, moreover, exert a slight depressing influence upon each of the remaining industries so that we

would expect the number of industries where the actual product fell below the theoretical to exceed in number those where it was greater. This was exactly what happened from 1904 to 1919. Why the opposite result should have occurred in 1889 and to a much lesser degree in 1899, however, merits further study.

Even more important, however, is an analysis of each of the 87 American cases where the deviations were more than two standard errors of estimate from the theoretical values and I only regret that lack of time prevents a full analysis of these instances. Let us first consider the forty in which the deviations were of a minus nature. In no less than ten cases, these were in the flax, hemp, linen, jute and oakum family of industries, which has always been one of the most "sweated" groups in all industrial countries. Two were in allied "sweated" industries, namely nets and seines (1904) and hammocks (1889), while three more were connected with cotton which has generally been a sub-standard industry. Three more, charcoal, waste, and canning oysters, have been distinctly disagreeable and badly "sweated" industries, while several others, such as grindstones, millstones, hooks and eyes, etc., were instances of contracting demand.

On the other hand, the vast majority of the plus deviations which amounted to more than two standard errors of estimate can be explained as caused by (1) some form of quasi-monopoly or imperfect competition, or (2) by expanding demand, or (3) by both factors. Examples of the first are wood engraving, gold and silver reducing, lapidary work, music publishing, glucose, starch, linseed oil, patent medicines, tin plate, brass, and lead. These in themselves accounted for nineteen of the markedly plus deviations.

Illustrations of the second group, namely those caused by an expanding demand, were cordials and flavoring syrups (1909, 1914, 1919), oleomargarine (1914), perfumery (1919), and washing machines (1919).

There is also a third class of plus deviations which was probably affected both by imperfect competition and by expanding demand. Illustrations of this group are airplanes (1914), chewing gum (1919), cigars and cigarettes (1919), fountain pens (1914), photographic supplies and equipment (1904, 1909, 1914), cash registers (1889), smelting and refining copper (1899, 1904), typewriters and supplies (1889).

A very large majority of the major deviations so far as the United States is concerned, were, therefore, precisely what we would expect on *a priori* grounds. Belief in the function as a description of "normal" relationships is, therefore, still further strengthened.

VI. *To What Degree Do the Shares Which Labor and Capital Receive of the Product Approximate the Proportions Which We Would Expect from the Values of the Production Function?*

We now come to one of the most important features of the theory of production and of distribution, namely, the relative degree to which the actual shares received by labor and capital approximate those

TABLE VIII.—A COMPARISON BY YEARS OF THE VALUES OF THE EXPONENTS OF LABOR AND CAPITAL IN THE PRODUCTION FUNCTION FOR AMERICAN MANUFACTURING (k AND j) WITH THE UNWEIGHTED AVERAGE OF THE SHARES OF THE NET VALUE PRODUCT RECEIVED BY LABOR (W/P)

Year	N	k		$\frac{k}{k+j}$	$\frac{W}{P}$	Degree to which W/P differs from k and $\frac{k}{k+j}$ in terms of standard errors	
						$\frac{\frac{W}{P}-k}{\sigma_k}$	$\frac{\frac{W}{P}-\frac{k}{k+j}}{\sigma_k}$
1889	363	.51	.43	.54	.60	+ 3	+ 2
1899	332	.62	.33	.65	.58	− 2	−3–4
1904	336	.65	.31	.68	.64	−0–1	− 2
1909	258	.63	.34	.65	.63	0	− 1
1914	340	.61	.37	.62	.59	−0–1	− 1
1919	556	.76	.25	.75	.59	−8–9	− 8
Average	—	.63	.34	.65	.605	—	—

which we would expect from the values of the production function. As my associates and I have demonstrated mathematically a number of times, we would expect, under conditions of (1) true constant returns where the sum of the exponents is equal to unity and (2) perfect competition, that each factor of production would receive that fraction of the total product which is indicated by its exponent.[26]

[26] The share which labor receives:

Let W = the amount of wages received.

Marginal productivity of labor $= k\frac{P}{L}$

$$W = L\,k\frac{P}{L} = kP$$

$$W = kP$$

$$k = W/P$$

Similarly, for capital.

Let us, therefore, compare the actual share which wages and salaries formed of the net value product (*i.e.*, W/P) in the various years with the values of k. It will also be instructive to compare W/P with the ratio of $\frac{k}{k+j}$ since the latter is a rough measure of what we would approximately expect to occur if the total product were to be divided between labor and capital so as to eliminate either net residual profits or losses.

This is shown for the United States cross-section studies in Table VIII. From an examination of this table, it will be seen that in five of the six years there was a very close agreement between the values of k and of W/P. In one year (1909), there was precise agreement between the two; in two of the years (1904 and 1914), the differences were approximately only one standard error, while in two more (1889 and 1899), they amounted to two to three standard errors. The biggest difference was in 1919 when W/P was less than k by over eight standard errors.[27]

Taking the average for the six years as a whole, we find that k averages .63, $\frac{k}{k+j}$ equals .65, and labor's actual share or W/P was .605. There was, therefore, a close average agreement for the period between what we would have theoretically expected the distribution of the product to be under conditions of perfect competition and that which actually occurred. It should be remembered, moreover, that due to our inability to deduct allowances for depreciation in specific industries, the true values of W/P are probably understated by approximately 3 percentage points,[28] and that, therefore, the average

[27] The year 1919 was one in which prices rose with great rapidity. It would be expected, therefore, that wages would lag behind in such a period.

[28] On the basis of Dr. Fabricant's estimate of depreciation totals for manufacturing as a whole in 1919, it appears that these amounted to approximately five per cent of the value added by manufacturing in that year. If this had been deducted, labor's share would, therefore, have been raised in 1919 by about three percentage points, or to approximately .62. Thus, Fabricant's careful allowance for depreciation in 1919 was 1151 millions of dollars. (Solomon Fabricant, *Capital Consumption and Adjustment*, pp. 260-61.) The total value added by manufacturing in that year, (*i.e.*, value of product minus cost of raw material minus rent and taxes minus cost of contract work) was 22,486 millions of dollars. This comes to a depreciation rate in terms of net value of product of 5.1 per cent. If we deduct such estimated charges, we would raise labor's share by almost precisely 3 points (*i.e.*, $\frac{3}{95} = .62$). Due to the smaller quantity of capital used per unit of product, in the earlier years the additional "loading" required to approximate labor's share would then have been somewhat less, and for 1889 and 1899 would probably have been nearer two percentage points.

ratio of W/P was probably very close to .63 or the exact average value of k.

I submit, therefore, that the degree of agreement between the values of k and of W/P is most striking and that the results conform to what normally would be expected to occur under competitive productivity theory. Hence, this constitutes a still further reinforcement to the productivity function itself.

It should, however, be frankly recognized that there is a further problem of reconciling these results with the known facts of imperfect competition, oligopoly and monopoly. Such conditions, as has been abundantly developed in our meetings, do exist, and, in fact, characterize a large sector of our economy. It is, therefore, puzzling to find labor's share approximately equal to that which we would expect under conditions of perfect competition. A further investigation of this subject is much needed. In the meantime, I would merely suggest that perhaps one answer to the paradox may be that the quasi-monopolies and oligopolies may have shared with their workers the excess gains which they have made at the expense of the consumers.

We can make a further test of the degree to which W/P approximates k and $\frac{k}{k+j}$ by examining the results for the British Dominions of Australia, New Zealand, and Canada. This is done in Table IX.

Taken in the large, the agreement in the cross-section studies for Australia between the values of W/P and k are indeed striking. In each and all of the five inter-industry studies for the Commonwealth, the differences never exceeded one standard error of k. For the five years as a whole, the average value of k and W/P were both .55. The average value of $\frac{k}{k+j}$ was .56. It would scarcely be possible to have a closer agreement than this.

In the case of the four studies for the Australian states, the differences in the case of Victoria were not great, never exceeding two standard errors of k and being slightly reduced if the comparisons are made between W/P and $\frac{k}{k+j}$.[29] For the three years as a whole, the differences are largely ironed out since the average values of k are .65 and of W/P .66. The average value of $\frac{k}{k+j}$ was .70.

[29] In the Queensland study the value of W/P was .614 or less than one standard error more than the value of k.

TABLE IX.—A COMPARISON BY YEARS OF THE VALUES OF THE EXPONENTS OF LABOR AND CAPITAL IN THE PRODUCTION FUNCTION FOR THE BRITISH DOMINIONS (k AND j) WITH THE UNWEIGHTED AVERAGE OF THE SHARES OF THE NET VALUE PRODUCT RECEIVED BY LABOR (W/P)

Dominion and Year	N	k	j	$\frac{k}{k+j}$	$\frac{W}{P}$	Differences between W/P and k in terms of standard error	
						$\frac{\frac{W}{P}-k}{\sigma_k}$	$\frac{\frac{W}{P}-\frac{k}{k+j}}{\sigma_k}$
I. Australian time series							
Victoria 1907–1929	22	.84	.23	.79	—	—	—
New Zealand (Brown) (1915–16)–(1934–35)	18	.42	.49	.46	.52[a]	+0–1	+0–1
New Zealand (Williams) 1923–1940[b]	18	.54	—	—	.54	—	—
II. Cross-section studies							
Australia 1912	85	.52	.47	.53	.54	+0–1	+0–1
Australia 1922–23	87	.53	.49	.52	.54	+0–1	+0–1
Australia 1926–27	85	.59	.34	.63	.57	−0–1	−1–2
Australia 1934–35	138	.64	.36	.64	.61	+0–1	−0–1
Australia 1936–37	87	.49	.49	.50	.51	+0–1	+0–1
Victoria 1910–11	34	.74	.25	.75	.64	−1–2	−1–2
Victoria 1923–24	38	.62	.31	.67	.65	+0–1	−0–1
Victoria 1927–28	35	.59	.27	.69	.68	+1–2	−0–1
New South Wales 1933–34	125	.65	.34	.66	.51	−3–4	−3–4
Average All Commonwealth and State Studies		.60	.37	.62	.58		
Average Commonwealth Studies Only		.55	.43	.56	.55		
New Zealand 1938–39	61	.46	.51	.47	.57	—	—
Canada 1923	167	.48	.48	.50	.50	+0–1	0
Canada 1927	163	.46	.52	.47	.48	+0–1	+0–1
Canada 1935	165	.50	.52	.49	.40	−2–3	−2–3
Canada 1937	164	.43	.58	.43	.52	+2–3	+2–3
Average Canadian Studies	—	.47	.52	.47	.48	—	—

[a] For the years 1924–1935 only.

[b] In the Williams study, the values of k were computed using formula (1). All other values were computed under formula (2).

In the one cross-section study which was carried through for New South Wales, the differences were greater, amounting to between 3 and 4 standard errors of estimate. In the case of Canada, however, the *average* degree of agreement was very close. The average value of k for the four years was .47, and similarly, $\frac{k}{k+j}$ was .47; while the average ratio of W/P was .48. This is an almost precise agreement. This agreement was also true of the years 1923 and 1927 when they are considered individually. The years 1935 and 1937, however, exhibit opposing tendencies. In the former year, k exceeded W/P by an appreciable amount; in the latter year, which was marked by great wage advances in the United States, which were reflected to some degree in Canada, this situation was exactly reversed. The two differences, however, almost precisely offset each other. The case of South Africa does, however, merit special mention. As I have pointed out, Professor Browne found that the combined exponents for black and white labor in 1937-38 were .65, but he also found that both groups of labor received only a total of .46 per cent of the net value added. While Professor Browne does not draw such a conclusion, perhaps this is a case where a highly monopolized set of industries which are largely run by foreign employers or by men whose cultural interests are elsewhere, do not give to the laborers that which in a competitive society they would obtain.

VII. *Summary*

After working on this problem for the better part of twenty years, I think I am aware of the many difficulties which are involved. In a few cases, the method apparently breaks down and in other cases incongruous results are obtained. I should like to suggest, however, that the following tentative conclusions seem justified.

1. That within a given country for the periods studied, there is a substantial and indeed a surprising degree of agreement in the values of k and of j which we obtain for various years.

2. There is also a surprising degree of agreement between the results for the United States, Australia, and South Africa.

3. It is hard to believe that these results can be purely accidental, as some critics have maintained.[30] Time studies for the period between

[30] It would be interesting to work out the mathematical possibility that these results are purely accidental. I believe that it would only be one out of many millions. It is theoretically possible, as Bertrand Russell has pointed out, that all the books in the British Museum were written by monkeys pounding typewriters at random. But we know that they were not!

the two great wars are, however, likely to present difficulties.

4. The deviations of the actual or observed values from those which we would theoretically expect to prevail under the formula are not large and indeed are slightly less than we would expect under the random distribution of errors of sampling and of measurement. It is submitted that the total number of observations, namely over 3,500, is sufficiently large so that if the results had been purely accidental, this degree of agreement would not have occurred.

5. The instances of large deviations of the actual from the theoretical values can in most cases be explained as being caused by imperfect competition and by expanding demand in the case of the plus deviations and by contracting demand, "sweating," and possibly "excessive" competition in the case of the minus industries. This would indicate that if these complications could be eliminated, the agreement between the actual and theoretical products would be greater.

6. That, taken in the large, there is an almost precise degree of agreement between the actual share received by labor and that which, according to the theory of marginal productivity, we would expect labor to obtain.

In conclusion, may I emphasize again that there is much work which remains to be done on this question and that a lifetime would be all too short to probe the many problems which present themselves. Is it too much to hope that the succeeding twenty years may see further progress along this line and that if the older generation finds it impossible to carry on such studies, the younger economists may find such lines of inquiry a challenge to their ingenuity and abilities?[31] I have always been struck by the old Hindu saying, "This is no door but only a little window that opens out upon a great world." Since this is peculiarly applicable to the studies which I have attempted, upon that note I shall end.

[31] Some of the studies which badly need to be carried out are (1) to develop the production function for each and every year over a long period, say 1910-1940, for Australia, New Zealand, and Canada; (2) to carry on studies of the production function for a large number of specific firms and *within* specific industries and hence connect the theory of the firm and of the industry with that of the economy; (3) to carry on further studies, along the lines of Mr. Olson, on inter-spatial variations in real income and the factors affecting them; and (4) to develop production functions for agriculture, mining, and public utilities.

In order to bring our analysis down to date in the larger countries, it is highly desirable that statistics on the quantities of capital be collected for Great Britain, Sweden, and the United States.

MONETARY ASPECTS OF THE ECONOMIC SITUATION

By R. G. HAWTREY*

Economists have always insisted that money is something extraneous to the real essence of economic life. It is on the one hand a medium, on the other, a measure; and a medium is not of the essence of the things exchanged, nor is a measure of the essence of the things measured. And the economic distresses which are troubling the world at the present time arise primarily from causes outside the sphere of money. The destruction wrought by war is only a part and not the greater part of the trouble. Worldwide scarcities and deep-seated dislocations have resulted from the diversion of the productive resources of mankind to purposes bearing no fruit. Not only has the accumulation of new wealth been interrupted, but the pre-existing accumulations have been depleted, stocks of goods have been drawn upon, and the upkeep, renewal, improvement and extension of plant and property have fallen into arrears.

The world, in fact, has been disastrously impoverished, and so far has the impoverishment gone that the productive power on which recovery depends has been gravely impaired. Work-people, themselves to a disproportionate extent raw and inexperienced, using worn out or obsolescent plant, find their efforts cramped or frustrated by the inadequate and irregular flow of scarce materials.

It is more especially the Eastern Hemisphere, where the combat areas lay, that is suffering. Canada and the United States, in addition to their own immense direct military operations, made a lavish contribution to the equipment and supplies of the British and Allied forces. Yet, even after their gigantic war efforts, they emerged with productive power relatively unharmed, and it is to them that the impoverished countries of the old world are looking to provide the desperately needed immediate supplies.

The continent of Europe has suffered greater devastation and graver dislocation than Great Britain, and is in more urgent need of food and materials. But in one respect the position of Great Britain is subject to a special weakness: she has incurred a burden of external indebtedness.

President Roosevelt described the Lend-Lease act as eliminating the dollar sign. The supplies which were provided carried no pecuniary

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obligation; they were for the most part destined to be consumed, used up or destroyed, and only such residue as might survive was to be returned. For the rest no material equivalent was asked; an undertaking to participate in a liberal trade policy, in the interest of the world at large as much as of the United States, was all that was sought.

When the United States entered the war, reciprocal aid rendered by Great Britain and other Allies provided a partial set-off against Lend-Lease supplies, but only a fraction of the huge total was so balanced.

Nevertheless, this aid was far from meeting Great Britain's wartime requirements. From the outbreak of war Great Britain had proceeded to exploit her credit with a view to raising resources from all quarters for her war effort. Those of her external investments which were marketable were requisitioned by the government to be disposed of: dollar stocks and shares in America; sterling loans in the Dominions and India. And arrangements were made with a number of countries for the accumulation unspent of the sterling they received in payment for the supplies obtained from them. The "sterling balances" thus accumulated constitute a vast external floating indebtedness. If the pound sign accompanied the dollar sign into a state of suspended animation in the reciprocal aid rendered to the United States, yet it maintained a very active existence in the British indebtedness to other countries.

The war effort cleaned out Great Britain's wealth. There is, it is true, a remnant, and a very valuable remnant of her external assets in the form of "direct" investments, such as subsidiary companies or branch firms, which, though not marketable, nevertheless yield a substantial profit-income. But these are far more than counterbalanced by new indebtedness.

Great Britain has long enjoyed a very special position in the economic world, reaping the profits of a great mercantile and financial centre. It is these profits even more than her manufacturing industry that were the source of her vast accumulation of external investments and her unrivalled economic power. And in course of time she became *dependent* upon this external wealth. A population which has outstripped the capacity of the British Islands to supply food and materials, requires a great volume of imports, not merely to maintain its customary standard of living, but to keep alive.

So long as the war continued, a great part of what was needed was supplied under Lend-Lease. The gap was widened, not only by the progressive loss of income from oversea investments, but by the decline of the export trade, through the ruthless diversion of productive power from export industries to the war effort.

When the war came to an end, Lend-Lease was terminated: the

President pronounced the defence of Great Britain along with that of the other countries to be no longer essential to the defence of the United States. But the overwhelming burden of the British war effort could not be lightened in a moment. And it was in order to cover the country's urgent needs in the transition period, the period of demobilisation, of the resuscitation of the export trade and of the first stages of reconstruction, that the United States granted the loan of $3,750 millions on generous terms.

Several countries on the European continent are threatened with famine, unless they receive supplies from abroad. But Great Britain is *always* in that position; she depends on her exports, visible and invisible, to pay for essential food supplies. France is suffering from a disastrously short wheat crop. Yet that crop meets a greater proportion of consumption in France than a normal British crop in Great Britain. France, it is true, has not an economic organisation normally adapted to pay for the exceptional imports required to fill the gap, whereas the standard of living in Great Britain has been built up concurrently with growing exports and external resources. But now the external resources have been either swept away or deeply mortgaged, and it is only at the cost of strenuous efforts and grim austerity that exports can be expanded to fill the gap.

The end of Lend-Lease saw the re-entry of the dollar sign. Europe's shortage of supplies has taken visible shape in a shortage of *dollars*. Payment in dollars gives access to American supplies, as the key of the door gives access to the larder. The dollars, like the key, are a piece of machinery, machinery which cannot be disregarded if we are to understand the situation.

What would happen if markets and the foreign exchanges were perfectly free under the conditions of the present day? All over Europe the superfluity of money is as conspicuous as the shortage of goods. If the money could be freely offered for American supplies, it would quickly be found that the existing rates of exchange and American prices would confer an excessive purchasing power on the European money. A great excess of imports would begin to be attracted to Europe, and, failing sufficient reserves to pay for them, the rates of exchange would turn against Europe. That is to say, the European money units would depreciate in terms of the American dollar.

The rise in the foreign exchange value of the dollar would raise the prices of American supplies to purchasers in terms of European money units, and would reduce the prices of European exports in terms of American dollars. But it is not to be inferred that a return to equilibrium would result. A very big rise in the European prices of American supplies might be necessary to exert an appreciable deterrent effect on

demand. The stimulus to exports from Europe would take the form of correspondingly high prices in European money units. But it does not necessarily follow that exported products would take full advantage of these high prices. Industrialists are reluctant to charge prices which yield them extravagant profits. They are more inclined to take advantage of a favourable market to increase their sales, and to be content with prices calculated to yield moderate profit margins; if they did so, the dollar prices of the exported products would be reduced, and the reduction of price might even be more than proportional to the increase of sales, so that the total proceeds of exports in dollars would be diminished, not increased.

The deterrent effect on imports and the stimulative effect on exports only last so long as wages and other costs do not rise in proportion to the external price level. The remedial effect of depreciation upon the balance of payments depends on the disparity between the price level of importable and exportable goods on the one hand and the internal price level on the other being maintained. The existence of excess profits in the industries producing for export or in competition with imports gives rise to pressure for a rise of wages in those industries, a rise which diminishes the stimulus and may extinguish it. The rise of wages tends, it is true, to spread to all the other industries, but instead of re-establishing the difference in profit margins, and restoring the stimulus, this is likely to raise the internal price level, and to nullify the remedial effect of the depreciation altogether.

When an adverse balance of payments is itself due to an over-valuation of the money unit by reference to comparative costs, a devaluation which restores the appropriate proportion is a true remedy. But, when the adverse balance is due to an immediate shortage of capital resources, depreciation of the money unit has only a *limited* remedial effect. There is a rate of exchange to be found, which will make the proceeds of exports in terms of foreign money units a maximum. If that fails to establish equilibrium, a further depreciation is likely to be worse than useless.

The depression of the 1930's is best understood as a rise in the wealth-value of gold, that is to say, a fall of prices in terms of those money units which were fixed at gold parities. In general, the appropriate remedy for any country should have been a severance of the link between the money unit and gold, and a depreciation of the unit proportioned to the appreciation of gold.

But there was at the same time a violent distortion of *relative* price levels. Wages resisted reduction and prices of manufacturers could only be reduced to a very limited extent; output was therefore reduced and unemployment ensued. There was a corresponding contraction of the

demand for materials, a contraction which primary producers failed to meet by a reduction of output, and which led to a catastrophic fall of prices.

A country specialising in exports of primary products, could not increase the proceeds of its exports in foreign money units by depreciation of its own unit, and depreciation would be a clumsy and probably ineffective method of discouraging imports. Whether of necessity or not, countries in that predicament did have recourse to a direct restriction of imports, either licensing them and subjecting them to quotas, or limiting payment for them by exchange controls. There was no other sure way of saving their monetary reserves from exhaustion.

It was these practices that gave rise to the bilateral agreements which have been the object of so much criticism. Two countries which had both been compelled by a collapse of their export markets to restrict imports could afford to import freely from one another; each gained new export markets and each found some alleviation of the rigour of its import restrictions. In fact, the countries with weak currencies, while they could not afford to draw upon their monetary reserves by buying from those with strong currencies, could afford to buy from one another, for weak currencies were of no value as monetary reserves. The weak came to be leagued together by barter and clearing agreements into an exclusive system discriminating against the strong, more particularly against the dollar and the pound.

The desperate strain of the war effort put the pound sterling for the time being among the weak currencies. Exchange control was imposed in a form which made the sterling area a unit, for the foreign exchange needs of which Great Britain assumed the responsibility. With other countries recourse was had to bilateral agreements, of which the general principle was to reserve the earnings of British exports, visible and invisible, so far as they would go, to pay for necessary supplies, and to accumulate the debit balance in the form of a floating sterling indebtedness, not to be spent outside the Sterling Area.

Thus the end of the war found the world, except for the United States and very few others, tied up in exchange controls. Every exchange control had its official rates of exchange. When the urgent need of supplies from the United States was translated into a demand for dollars, the dollars were supplied at the official rates, but only for purposes permitted by the controls. Were markets free, the urgent demand for supplies would be felt in a high price for dollars. But the rate of exchange so arrived at would be a symptom of immediate needs; it would not correspond to comparative costs. If it passed beyond the point at which the total dollar proceeds of a country's exports were a maximum, it would not even be setting up a temporary equilibrium;

that is to say, *no* rate of exchange could be found at which the balance of payments would cease to be adverse.

There are, no doubt, countries of which the money units are over-valued; their export trade is hampered, and would be favoured by a depreciation which did not go beyond the critical limit. But in regard to others it would be a mistake to suppose that the palpable unsatisfied demand for dollars is evidence that the dollar is under-valued and ought to be raised.

That applies particularly to Great Britain. British war finance was by no means free from the inflationary taint, and the country has been left with a stock of money much in excess of its due proportion to the national income at the existing price level and wage level. But a comprehensive apparatus of controls has prevented this potential inflation from becoming actual. Controls of prices and of supplies for home consumption, and restrictions on capital outlay have limited opportunities of spending, and the exchange control has prevented investment abroad. There is no outlet for using the redundant money.

That has not kept the inflationary tendency altogether in check. The national income rose from £4,671 millions in 1938 to £7,974 millions in 1946, or 70 per cent. But there was severe unemployment in the former year, and so much monetary expansion as was required to attain full employment at the then wage level ought not to be called inflationary. If the unemployment to be extinguished were 10 per cent, the monetary expansion required to provide both for increased activity and for such rise in prices as would make them remunerative, would be more than in proportion. The inflationary expansion from 1938 to 1946 may be put at 50 per cent. (That would mean that full employment at the wage level of 1938 would have corresponded to a national income two-thirds of £7,974 millions, or about 15 per cent higher than it actually was.)

The note circulation of the United Kingdom rose from £505 millions at the end of 1938 to £1,422 millions at the end of 1946, demand deposits in the clearing banks from £1,256 millions to £3,823 millions. The quantity of money may be said to have trebled. Time deposits had only doubled, but war finance has been prolific in convenient substitutes for time deposits with higher yield, and it can, I think, be inferred that, had monetary habits remained unchanged, the supply of money would have supported a national income of £14,000 millions, or three times that of 1938, the rise in the price level being approximately in proportion.

Without laying stress on that calculation, it is certain that the inflationary pressure which the controls have to withstand is great. Indeed, if the assumptions have to be revised, it is in the direction of supposing the ratio of the flow of money to the quantity of money (income

velocity) to be not potentially lower than in 1938, but potentially higher. For, on the one hand, 1938 was still a year of depression and low income velocity, and, on the other, 1946 was one not only of activity but of intense pressure to spend, in order to make up for years of shortage and neglect. Industrial concerns have accumulated funds for renewals, improvements and extensions of plant and equipment, and private individuals for putting their houses, furniture, clothing and other property in order. These funds are held in the form not only of cash but of government securities, either short-dated or readily marketable. So long as the government policy was avowedly to keep up the prices of government securities, they could be regarded as the equivalent of cash. There is therefore good reason to believe that a calculation based on the three-fold increase in the stock of money *underestimates* the potential inflation.

Up to the summer of 1946 the monetary position in the United States was in these respects closely parallel to that in Great Britain. A powerful potential inflation was being held in check by controls. Total demand deposits and currency outside banks rose from $31,761 millions at the end of 1938 to $105,992 millions in June, 1946. The national income (personal) rose in the same period from $68,300 millions to $177,200 millions: had it risen in the same proportion as currency and demand deposits, it would have been $228,000 millions.

A more severe depression has to be allowed for in 1938 than in Great Britain, and probably a rise of the national income by 20 per cent to $82,000 millions would have been no more than sufficient to extinguish unemployment. And as in the case of Great Britain, the low income velocity of money at a time of depression must be taken into account. In 1929, when conditions approximated to full employment, the national income was $85,100 millions, and currency and demand deposits were $26,360 millions. I would not press the inference that the national income corresponding to $105,992 millions of currency and demand deposits in 1946 would have been $340,000 millions. But at the same time the position in regard to government securities in the United States is not altogether dissimilar from that in Great Britain. Without indicating a limit, I would conclude that the monetary situation of the United States as it was in the summer of 1946 was such as to admit of a very serious further inflation, and that the actual expansion that has occurred from $177,200 millions to $196,900 millions (July, 1947) is only a fraction of the potentiality.

The abandonment of controls in July, 1946, removed the defence which, as in Great Britain, had till then been relied on against inflation. There has been no other defence, and inflation has set in. Inflation has made curiously slow progress. The wholesale price index (100 in

1926) has risen from 112.9 in June, 1946, to 153.6 in August, 1947, or 36 per cent, and average hourly wages from 108.4 cents in June, 1946, to 125.1 in September, 1947, or 15 per cent. In 1946 controls had kept prices a long way below the level corresponding to wages. The effect of their relatively greater rise was to eliminate the disparity; prices and wages in 1947 were both about double what they had been in 1938. The very modest rise in wages since June, 1946, may therefore be taken as the measure of the inflation which has occurred.

I think the progress of inflation has been retarded by psychological conditions. An expectation that the rise of prices will soon cease, and make way for a fall, results in a decline of demand, and the expected fall is soon reflected in an actual fall. This has happened more than once since June, 1946, and the rise of prices has only been resumed when the underlying urge to spend has once more made itself felt.

There is in fact no obstacle to the continuance of inflation, and public opinion is waking up to the danger. President Truman in his message to the special session of Congress on November 17, 1947 urged the necessity of remedial measures.

Remedial measures can take either of two forms: (1) a re-establishment of controls, or (2) monetary and credit restriction.

Controls are precarious; they are difficult to enforce, and, being unpopular when they are enforced, are liable to arouse political opposition and to be prematurely repealed. Moreover, controls can do no more than hold a potential inflation in check; they do not eliminate it. If the controls are ever to be dispensed with without once again letting loose inflation, something must be done to stop the inflationary tendency at its source. Inflation, when *fully* active, can be stopped by ceasing to create fresh money. Indeed active inflation causes the flow of money (as measured by the national income) to be in a higher proportion than usual to the stock of money. There is an excessive income velocity, and, when confidence in the money is restored, income velocity tends to be reduced. In other words, with a given supply of money the flow of money falls off, and the price level falls with it. Indeed, it may well happen that, unless some increase is allowed to occur in the stock of money, the inflation may not merely be stopped but may be reversed and make way for deflation.

But when inflation is not active but only a *potentiality,* the flow of money is not in a higher but in a lower proportion than usual to the stock of money. The need is to prevent the flow of money from increasing. Price controls combined with restrictions on spending may achieve this object, but the potential inflation can only be eliminated by a reduction in the stock of money.

The argument is sometimes put forward that the best cure for infla-

tion is an increase in production. When a country is not producing up to capacity, an increase in production will involve an increase in the flow of money at a given price level, and a proportionally enlarged stock of money may then be held without any inflationary consequences. If the under-employment is due to an insufficiency of the flow of money in relation to the wage level, a rise of prices just sufficient to make industry remunerative at the existing wage level is not inflationary in any harmful sense. But this has no application to a country which is already fully employed. Technological progress or improved organisation may increase productivity in particular industries, but the resulting reduction of real costs ought to take effect in a reduction of prices of the products concerned; if the price level is kept unchanged, there must be a *rise* in the prices of other products, which is a concealed inflation. An inflation too slight to worry about, it will be said. Yes, but slight only because, once full employment is reached, any further gain in productivity taken over industry as a whole is slight.

Eventually a country may grow up to a stock of money, initially excessive, the flow of money, even though the wage level be unchanged, becoming proportional to the stock. Growth here means not only growth of population, but growth of capital equipment and upgrading of people to more skilled or responsible work as the humbler tasks are taken over by labour-saving machinery. But the redundancy of money in the United States or Great Britain at the present time is such as might take a generation for the economic life of the country to grow up to. Meanwhile, potential inflation is pressing against controls in Great Britain. and has already in part developed into actual inflation in the United States.

In either country relief is to be found in a reduction of the stock of money. The stock of money is composed of currency and bank deposits, both of which are created against banking assets. If the banking assets consisted wholly or principally of short-term advances to traders and private borrowers, the stock of money could be reduced by a refusal or discouragement of fresh advances, so that there would be an excess of maturities, possibly hastened by a calling in of some of the advances already made. But the existing potential inflation has arisen from wartime advances to government. When commercial banks fail to renew maturing government securities, and the government is not raising funds from the public by taxation or loans to redeem them, the consequence is that the central bank has to advance the money to the government, and the inflationary tendency is aggravated.

If the stock of money is to be reduced, the government must raise the necessary resources. The need for a balanced budget as a pre-

requisite of any measures for coping with inflation is universally recognised. But to extinguish redundant money, a mere balance is insufficient; there must be a *surplus*. Nor will a surplus automatically effect the desired extinction. A surplus applied to redeeming debt in the hands of the public increases the amount of money in the investment market seeking new openings for capital enterprise, and the outcome is likely to be the application of the resources withdrawn from the taxpayers to new capital outlay.

A budget surplus, if it is to be an effective instrument for counteracting inflation, must be applied to extinguishing government securities in the hands of the *banks*. Yet even that is not a certain solution. For the banks may replace the money extinguished by making fresh advances to traders, or may even replace the government securities by buying similar securities in the market. To one who can count on ready facilities for obtaining money from his banker, the cash balance is a matter of secondary importance. If the extinction of redundant money is to be an effective preventive of inflation, it must be supported by some restraint in lending by bankers. A century ago the Bank of England had been accustomed to impose this restraint by refusing to lend. At times when the whole British banking system was running short of cash, and the Bank of England itself would not lend, the result was an acute crisis, threatening a universal suspension of payments. So the milder practice was adopted of continuing to lend but at a high rate of discount or short-term interest. This was the dear money, which has become so distasteful to the business world.

Dear money has become distasteful because experience has shown that it does its work; it deters borrowers, checks the creation of money, and so inaugurates a deflationary tendency. Deflation, as the source of depression and unemployment, has very rightly become odious. But what is in question in present circumstances is a deflationary tendency which is to do no more than eliminate the potential inflation. The infliction of dear money is to be only such as is required to prevent a renewal of the inflationary tendency; so limited, it is entirely consistent with the continuance of full employment. The extent and duration of dear money would be determined by trial and error, as it used to be when it was applied to maintain gold reserves. Today, instead of the maintenance of gold reserves, the criterion should be the maintenance of an equable flow of money: incomes, outlays and disposals at just so high a level as to secure full employment, and no higher.

It is when redundant money has already been extinguished, and the stock of money brought into due proportion to the flow of money, that this application of dear money comes into view. So long as the

redundant money remains available, it is difficult to make dear money effective. When the deterrent effect is felt by the would-be borrowers, there are others who have the money in hand to extend their operations, and the expansive tendency, though for the moment retarded, is not stopped.

With the banks stuffed up with government securities, as they are in Great Britain and the United States, the customary procedure by which bank rate or rediscount rate is made effective breaks down; the banks, being able to add to their cash holdings to any desired extent simply by letting their short-dated government securities mature, have no need to obtain rediscounts, and the rates charged by the Bank of England or the Federal Reserve Banks do not concern them. But that does not mean that dear money cannot be enforced. For if the central bank insists on a certain rate on the Treasury bills which it takes, that rate will govern the market not only for Treasury bills but for all short-term lending. A bank which lets its Treasury bills mature will be forgoing the rate which it could have earned by renewing them; and when it lends to a customer it has the alternative of buying a Treasury bill.

Dear money, it must be admitted, is an additional expense to the government. It is immediately felt in the rate paid on the floating debt. Any impediment to short-term borrowing is likely to lead those in need of cash in many cases to sell government securities, and the prices of government securities will fall. That does not mean that the *yield* of long-term investments will approximate to the short-term rate, but only that prices will be just sufficiently unfavourable to have a deterrent effect on sales as a substitute for borrowing. If the market in long-term and medium-term securities is supported by government purchases, the deterrent effect of dear money will be counteracted.

If a large part of the floating debt held by the banks is redeemed, dear money is more easily made effective, and the cost to the government in increased debt charge is so much the less.

But it is not possible to make much impression on the redundant money by surplus revenue derived from current taxation. In either Great Britain or the United States, it would be a matter of raising a sum comparable to an entire year's tax revenue. Great Britain at any rate is overtaxed; the tax revenue in 1946 was 38 per cent of the national income, and local taxation and social security contributions added a further 5½ per cent making 43½ per cent in all. In the United States, the proportion is of course much less, but it is still high.

In any case no fiscal measure short of a comprehensive capital levy would yield anything like enough. And a capital levy would not produce an immediate yield. It is an immense administrative undertaking, tak-

ing a year or two to assess, and many of the taxpayers, being assessed on illiquid or unmarketable property, have to be given time to pay by installments.

Failing taxation, there remains the expedient of a loan. But how are people who are looking forward to overtaking arrears of necessary spending, and who have hitherto preferred to hold their money in idle balances, to be induced to invest? It is not certain that a loan even at a high yield would raise any considerable sum, for it would be understood to be a change of policy, and would dispel the expectation of government securities always being saleable without capital loss.

The conclusion to which this reasoning points is a *forced* loan. A forced loan does not need the meticulously just assessment characteristic of a capital levy. The contributor receives the equivalent in an interest-bearing bond of the money he parts with, and he suffers no loss; if he is contributing more than his neighbour, he has no serious ground of complaint.

The example of a forced loan has been set by Belgium, and has been followed by Holland, Czechoslovakia and Norway. The principle, which goes back to an earlier precedent in the case of Czechoslovakia in 1919, is to withdraw a portion of the note issue, to freeze a portion of the bank deposits, and to issue holdings in a government loan in place of the currency withdrawn and the bank deposits frozen. The adoption of the plan by newly liberated countries was linked with measures against black-market operators and enemy-held currency, but these were a complication not necessary to it. The withdrawal of currency has to be effected by the substitution of an entire new note issue for that part of the circulation which is not to be converted into bonds.

It will be seen that the assessment of the forced loan is on the *cash* resources of the contributor. His cash resources have little relation to his total resources. A rich man may have an overdraft, and cash resources practically ***nil***, while one of very modest means may happen to have a sum representing the greater part of his wealth in cash, to pay for the imminent purchase of property or securities or to discharge a debt. If hardship and embarrassment are not to be caused to individuals in immediate need of the cash taken from them, facilities must be afforded either for selling the new bonds or for borrowing, or preferably for both.

It is to prevent these facilities leading to the cash which has been extinguished being replaced, that dear money might become necessary.

A forced loan on these lines is the most direct and effective method of eliminating a potential inflation. A stronger dose could be applied to bring about deflation. But public sentiment would rightly be decisively opposed to a positive deflation. Inflation causes hardship and injustice,

but, once it has occurred in active form, it can only be reversed at the cost of fresh hardship and injustice.

If the potential inflation in the United States is left to work itself out, it is only too likely that in the end popular resentment at the rise of prices will insist on measures calculated after all to cause the deflation which every one is so intent on preventing. That would be a repetition of the blunders of 1919-21, when inflation was allowed to take hold for a year and a half, and was at last violently reversed.

I would not contend that nothing can be done without a forced loan. Production has been at a very high level throughout the past two years in the United States, and progress has been made towards the rehabilitation of plant and property. The abandonment of price controls favours the reconstitution of inventories. The arrears of spending are no longer exercising such pressure as two years ago, or as they are now in Great Britain. Bank advances other than to government have risen to a substantial total, and it may well be that dear money, if applied under present conditions, would have a considerable effect.

If a definite pause could be brought about in the progress of expansion, there might be a favourable opportunity for a big funding loan on a voluntary basis.

Proposals have been put forward for imposing more severe reserve requirements on member banks. In effect that would be to impose the forced loan on the banks instead of on their customers. It would help towards stemming the flood, but it could not be of a magnitude comparable to the forced loan.

The position in Great Britain differs from that in the United States: controls are still not merely operative but effective; they cannot be dispensed with in consequence of the country's debtor position; active inflation has made less progress, but the potential inflation is exerting heavy pressure; and much less progress has been made in overtaking the arrears of spending. Inflation in fact is being kept in check, but the consequences which would follow on its breaking loose are more dangerous.

The recent misfortunes of France are a warning. It would seem to be regrettable that drastic surgery on the Belgian plan was not applied to the redundant money in France. After liberation, the French government relied on a voluntary loan which did not yield nearly enough for a monetary reform, and, though there was an exchange of currency, none was withheld and the new note issue was equal to the old.

At the present time Great Britain, along with other countries, is exposed to a special danger in that the pound sterling, being linked to the dollar at the fixed rate of $4.03, is liable to be drawn into the American inflation. The sterling prices of British imports reflect the rise of

world prices in terms of gold and dollars. At the same time the prices of British exports do not necessarily rise in proportion. Theoretically they could and should, but British manufacturers hesitate to ask prices out of proportion to their costs.

This is an undesirable and unstable position. It might be rectified by raising the dollar value of the pound to the limit which British exports could stand. But if the inflation continues in the United States, the rate would have to be further raised from time to time at short intervals, and a rapid succession of states of "fundamental disequilibrium" would be difficult to fit into the administration of the International Monetary Fund.

If the pound remains linked to the dollar, and a parallel inflation is allowed to occur in Great Britain, it is to be feared that when the turning point comes in the United States, Great Britain will refuse to take part in the deflation. Continued inflation in Great Britain, associated with a devaluation of the pound, and possibly rapid successive devaluations, would be a deplorable outcome.

This prospect is only a sample of the problems now facing all the money units which are linked by the International Monetary Fund to gold, and through gold to the United States dollar. Inflation or deflation in the United States is communicated to all the rest. It is difficult enough to stem the progress of inflation in countries such as France, where it has already broken loose, or to hold it back in those, such as Great Britain, where it remains a potentiality. But if the United States dollar is to continue its existing course of declining wealth-value till there comes a violent reaction and severe deflationary measures, as in 1920-21, their difficulties will be terribly aggravated. Well-meant aspirations towards full employment are in vain, if American monetary policy is to enforce deflation.

It may be retorted, why not be content just to stop the inflation when it goes too far, but not to reverse it by way of deflation? Certainly. But that means stopping the inflation *before* it goes too far, stopping it, that is, at a price level which can be tolerated as a *permanency*. And if it is to be a permanency, measures must be taken to counteract future tendencies either to inflation or to deflation in their inception. Only by preventing undue monetary expansion can the need for deflation, with its train of depression, unemployment and restrictions, be avoided.

GERMANY'S PREPARATION FOR WAR: A RE-EXAMINATION*

By BURTON KLEIN

When Germany marched against Poland in September, 1939, her military might was not questioned. The nazi government, it was commonly believed, had for six years concentrated the country's resources on preparation for war. This was a tacit assumption of the diplomacy of the period, and a point of major emphasis in the voluminous writings on Germany.

Nearly all the economic and political studies of prewar Germany agreed on three major propositions.[1] These were: (1) that in the period before 1939 Germany had succeeded in building up a military machine whose comparative strength was enormous; (2) that practically all of the increase in production from the low level of the depression was diverted into the construction of a huge war potential; (3) that all economic considerations were subordinated to the central task of preparing for war.

Even a cursory examination of the official German data recently made available shows that the validity of these propositions is questionable.[2] On the manpower side, for example, mobilization fell nearly a million short of the number in the armed forces at the outbreak of World War I. Nor was preparation in the industrial sphere more impressive. German aircraft production at the beginning of the war, 675 per month, was about the same as Britain's. Tanks, the main weapon of blitzkrieg warfare, were produced at the rate of 50 per month, a rate of output which was exceeded by the British. Another indication of Germany's preparedness was the state of her stockpiling program. In July, 1939, the Wehrmacht estimated that such critical items as gasoline, fuel oil, iron ore, magnesium and rubber, were in sufficient supply for only a few months' fighting.

Economic writers were, as subsequent events proved, correct in their

* The author is at Harvard University where he is engaged upon a study of Germany's wartime economy made possible by a grant from the Carnegie Corporation. This article is to be part of the study.

[1] See for example: Gustav Stolper, *German Economy 1870-1940* (New York, 1940); Henri Lichtenberger, *The Third Reich* (New York, 1947); Jurgen Kuczynski, *Germany: Economic Conditions under Fascism* (New York, 1945); Maxine Sweezy, *The Structure of the Nazi Economy* (Cambridge, 1941); "Germanicus," *Germany, the Last Four Years* (Boston and New York, 1937).

[2] The data presented in this paragraph were selected from *The Effects of Strategic Bombing on the German War Economy*, U. S. Bombing Survey (Washington, 1945).

belief that Germany was preparing for war. However, their interpretation of the character of the Nazi economic mobilization was wrong. In this paper it will be shown that the central proposition of these writers —that Germany was making massive war preparations—was very much exaggerated. Since a number of important economic conclusions were based on this assumption, these will have to be revised. In particular, it will be demonstrated that the proportion of output directed to war purposes was not nearly as great as has been usually supposed, and not sufficient to prevent a very substantial recovery of private consumption and investment. It also will be shown that monetary policy, far from having been made subservient to Hitler's political and economic aims, conditioned both the recovery strategy and economic mobilization for war. Inasmuch as it is impossible to disassociate rearmament from general economic strategy or general economic accomplishments, this paper will cover a number of the broad aspects of German economic history in the period 1933 to 1939. The discussion will be divided into the following parts: The Role of the Fear of Inflation in General Economic Policy; The Nature of the Economic Recovery; The Magnitude of War Preparations; and The Factors which Limited Economic Mobilization.

I. *The Fear of Inflation*

When the nazis came into power in the spring of 1933, economic activity had recovered only slightly from the lowest point of depression. The index of industrial production in the second quarter of 1933 stood at 63 (1928 = 100), only 3 per cent above the lowest point of the depression. Unemployment, which had reached 6 million in the early part of 1932, had declined by only 500,000. Other economic indices, such as gross national product, farm income, retail sales, and private capital investments, also show that in the spring of 1933 recovery had only begun.[3]

To solve Germany's economic problem Hitler did not introduce a "New Deal." Germany's basic economic policy for the prewar period had been initiated before the nazi accession to power.[4] The Brüning government (1930-32) decided against devaluing the mark. Evidently, the memory of the inflation was still too fresh, and the fear that devaluation would lead to a flight from the currency was a compelling

[3] See Table II p. 62 for annual data on the index of industrial production, gross national product, private investment, employment and unemployment. Data for farm income and retail sales appear in the 1938 *Statistisches Jahrbuch*.

[4] A detailed account of German recovery policy in the years 1930-38 may be found in: C. W. Guillebeaud, *The Economic Recovery of Germany* (London, 1939), K. F. Poole, *German Financial Policies, 1932-39* (Cambridge, 1939) or in the reports of the German Institute for Business Cycle Research.

argument in this decision. This meant, of course, that Germany's power to compete in international markets would depend on the decline of her internal prices at a faster rate than those of rival countries. To this end, the Brüning government sought to accelerate the deflationary process by raising taxes and reducing those prices and wages which had not been sensitive to the general decline. The unpopularity of these measures with both the industrialists and the laborers led to the overthrow of the government.

The von Papen and von Schleicher governments which succeeded the Brüning administration (July, 1932-January, 1933) initiated a number of positive recovery measures. These included the remittance of business taxes, the reduction of interest rates, the allocation of more than a billion marks for various types of public works, and the adoption of a direct relief program.

The recovery program did not extend to the stimulus of exports by currency devaluation. This measure was not taken because these governments, like the Brüning government, feared that such a decision would lead to a currency crisis. Since it was impossible to force internal prices down further, the deterioration of Germany's competitive position—with respect to other countries which had devalued—was inevitable. As a final outcome it later became necessary to introduce exchange rationing and selective devaluation in order to obtain necessary imports. Aside from restrictions on the withdrawal of foreign currency, however, it was not at this time necessary to institute an elaborate system of exchange control because Germany still had a "favorable balance of trade."

While it was not politically possible to continue a policy of forced deflation, the von Papen and von Schleicher governments had no intention of allowing prices to rise. Two circumstances dictated the retention of price and wage controls. In the first place, these governments were concerned with the possibility that government spending would lead to an internal price rise—something which was in itself to be feared. Secondly, given the decision not to devalue, an internal price rise would have made export difficulties ever greater.

Thus, pre-Hitler German economic policy combined both inflationary and anti-inflationary tendencies. It was a program of government spending and other fiscal measures designed to increase employment and income, coupled with strict control of wages and prices to insure that the impact of public expenditures would be on employment and output rather than on wage rates or prices. The basic framework was adopted by the nazis and the difference in their program was mainly one of degree. Recovery expenditures were increased; controls over prices, wages, and foreign exchange were tightened. It is not argued,

of course, that the eventual political aims of the nazis did not differ from those of the preceding governments. But the recovery strategy initiated by the previous governments was accepted, and no fundamental change in economic policy made to accommodate the nazi rearmament program. In short, the position taken here is that the prewar nazi period was not "an economic revolution."[5]

We shall summarize the nazi additions to the recovery strategy, considering first the deflationary aspects of the program, namely, external stability of the mark and internal control of prices and wages. In reaffirming the decision not to devalue the mark, the nazis were compelled to go much further in the direction of elaborate exchange control than their predecessors. Early in 1934 the trade balance deteriorated to such an extent that Germany's gold and foreign exchange were almost depleted. In order to guarantee necessary imports, Economics Minister Schacht introduced his famous "New Plan." Under this plan exchange was rationed in order to assure its use for only those types of imports deemed essential, and the volume of these was increased by a number of ingenious devices which, in effect, reduced foreign trade to a series of barter agreements.

As the inflationary pressure of government expenditures increased, controls over prices and wages tightened. In 1936, selective price controls were superseded by a general price ceiling. All wage disputes were referred to state approved Labor Trustees who were directed to grant wage increases only in exceptional cases.

A number of writers have made the point that the price and foreign exchange policies of nazi Germany can only be explained in terms of her preparations for war, arguing that after 1934 or 1935 there was no longer any economic basis for the retention of these policies.[6] It cannot be denied that the prevention of substantial price rises or use of import control to acquire war-important industrial raw materials are useful instruments for a war economy. And their usefulness in this respect may have provided the nazis with an additional reason for keeping them. Nevertheless, as will be seen more clearly in the latter part of this paper, the widespread fear of inflation—whether founded or unfounded —was a continuing factor which in any case provided sufficient reason for the policies actually adopted.

The second part of the nazi economic policy concerns the positive measures taken for recovery. In the "First Four-Year Plan" the nazis

[5] Many of the economic studies of prewar Germany have taken the contrary view. See, for example, Stolper, *German Economy*, pp. 240 ff.

[6] ". . . exchange control from the monetary and financial angles were superfluous as early as 1933 in all probability, but by 1935 for a certainty." Howard Ellis, "Exchange Control in Germany," *Quart. Jour. Econ.*, Suppl., Vol. LIV (1940), pp. 126-27.

expanded expenditures on the various public works measures initiated by the von Papen and von Schleicher governments and added a number of others to this portfolio. These measures were novel in their political implications, but in their economic content they were not much different from the attempts of the previous governments to stimulate investment and consumption. A brief account of some of these measures will indicate their twofold political and economic purpose.

Shortly after he came into power Hitler became greatly interested in equipping Germany with super-highways and in providing for the mass use of automobiles. Excise taxes on new vehicles, which as in other European countries had been extremely high, were discontinued. Expenditures on new vehicles were allowed as deductions for income tax purposes providing the purchaser scrapped his old car. The goal of self-sufficiency caused agriculture to be another favoured sector of economy. Here, in contrast to the general economy, minimum rather than maximum prices were set in order to raise agricultural incomes. The granting of marriage loans was another measure which reflected national socialist ideology. The purpose of these loans was, of course, to stimulate consumption expenditures and, even more important, to spread employment among households by taking women out of the labor market. These monetary incentives coupled with a propaganda campaign were very successful in inculcating the idea that women should remain in the home. These measures were, in fact, too successful, for their effects persisted into the period when labor became scarce.

The most widely discussed aspect of nazi recovery policy was the government-spending program and the method by which it was financed. Germany's experience provided a number of economists and publicists with an opportunity for expressing their views on the much-discussed subject of deficit finance.[7] The main issue in this case was whether or not large-scale deficits would lead to inflation and financial ruin. One side argued that the stringent controls over prices, wages, and the capital market ruled out the possibility of an inflation. Others thought that the financial strains attendant on such a program were more than Germany could bear and predicted a collapse of her economy.[8]

The fact of the matter is that in prewar years large-scale public borrowing was not undertaken. When the recent wartime experience of the United States and Britain is considered, the German methods of finance appear extremely conservative in comparison. Table I shows,

[7] See Otto Nathan, *Nazi War Finance and Banking* (New York, 1944); C. W. Guillebeaud, *The Recovery of Germany 1933-38* (London, 1939); Kenyon Poole, *German Financial Policies, 1932-39* (Cambridge, 1939).

[8] See, especially, *The Banker* (London) 1937, 1938.

although total government expenditures increased from 15 billion RM in 1933 to 39 billion RM in 1938, more than four-fifths of the funds expended during this period was raised by taxation. (In contrast, from 1932-36, one-half of the United States' government expenditures were deficit financed.) The 29 billion RM increase in the deficit offered no problem since national income had increased by 75 per cent and tax receipts had doubled.

Since quick recovery was a primary aim, it well may be asked why the nazi government chose not to reduce the high tax rates instituted by the Brüning administration and to rely instead on public deficits to finance expenditures. Such a policy was, in fact, advocated by a number of German economists.[9]

TABLE I.—TOTAL REVENUES FOR FISCAL YEARS BEGINNING 1 APRIL

	National Income	Total Government Expenditures	Taxes	Non-Tax Receipts	Borrowing[a]
1933	46.5	15.3	11.4	3.5	0.4
1934	52.8	17.4	13.4	3.6	0.4
1935	59.1	23.2	13.0	3.8	6.4
1936	65.8	25.8	16.3	3.9	5.6
1937	73.8	29.1	18.8	4.8	5.5
1938	82.1	39.4	22.9	5.3	11.2
Total		150.2			29.5

[a] Includes Secret Debt.
Source: see footnote 12.

Their arguments, however, had no influence on Schacht, Minister of Economics, president of the Reichsbank, and a banker by temperament. He was actually much disturbed that the propaganda machine allowed such unorthodox theories of government finance to be published "thus causing great anxiety for the economy."[10] Such "anxiety" was not caused by a feeling that government deficit spending might lead to a general rise in prices. Such a possibility was precluded by the elaborate system of price and wage controls. The danger attendant on government deficits seemed to Schacht to be the destruction of confidence in the basis of the currency. And this danger could not be measured by a cost-of-living index. Just how far the government could go in increasing the debt was "something imponderable to recognize, the time of which must

[9] See, for example, Robert Noll von der Nahmer, "Die Deckung des Oeffentlichen Bedarfs durch Nichtinflatorische Papierausgabe," *Finanzarchiv* (1934), p. 549.

[10] Record of the Council of Ministers, May 12, 1936, International Military Trials, *Nazi Conspiracy and Aggression* (Washington, 1946), p. 879.

be left up to fine sensitivity."[11] Thus the fiscal policy pursued during the recovery is another piece of evidence regarding the nazis' fear of inflation.

As we shall later see, this fear of inflation was of considerable importance for explaining the nazi attitude toward rearmament expenditures. Before the rearmament itself can be discussed, however, it is necessary to describe generally the nature of the economic recovery. When the patterns of production, consumption, investment and employment have been summarized, it will be much easier to fit rearmament into the economic picture.

II. *The Nature of the Economic Recovery*

It would be interesting to examine the relative efficiency of the various recovery measures and to discuss the theoretical implications

TABLE II.—GERMAN ECONOMIC INDICES—1928–1938

	Gross National Product Current RM (billions)	Gross National Product 1928 RM (billions)	Index of[a] Industrial Production (1928=100)	Employment[a] of Laborers (millions)	Unemployment[a] (millions)
1928	90	90	100	18.4	1.4
1929	90	90	101	18.4	1.9
1932	58	72	59	12.9	5.6
1933	59	75	66	13.4	4.8
1934	67	84	83	15.5	2.7
1935	74	92	96	16.4	2.2
1936	83	100	107	17.6	1.6
1937	93	113	117	18.9	.9
1938	105	126	122	20.1	.4

[a] *Statistisches Jahrbuch*, 1941–42, pp. 55, 410, 426.

of the high tax policy. This, however, would lead us from the main argument of this paper. For our purposes it is sufficient to say that the policies employed were quite successful in raising the national product and employment. As Table II shows, the current value of gross national product rose from 59 billion RM in 1933 to 105 billion RM in 1938.[12]

[11] *Ibid.*, p. 878.

[12] The limitation of space does not permit a detailed description of the method used for making the gross national product estimates. The methodology, closely following that used in this country, was based on a monograph on German National Income prepared by Paul Hermberg at the Federal Reserve Board. The gross national product estimates were built up from the German national income data using official sources for the various adjustments. The major components, government expenditures for goods and services, gross capital formation and the foreign trade balance, were derived from official German data. Consumer expenditures were obtained as a residual.

In making gross national product estimates in constant prices, the components were deflated separately, using official price indices. It is to be noted that these indices may

A small portion of this increase was due to price rises. In 1928 prices, gross national product rose from 75 to 126 billion RM, some 70 per cent. In the same period the index of production nearly doubled, reaching a level which was 20 per cent above the 1929 peak. From 1933 to 1936 unemployment declined from 4.8 million to 1.6 million (approximately the predepression level) and by 1938 was less than .5 million.

Inspection of the main components of the national product clearly indicates that in the latter peacetime years the German economy was

TABLE III.—GERMAN GROSS NATIONAL PRODUCT—1928 PRICES
(billions RM)

	1928	1929	1932	1933	1934	1935	1936	1937	1938
Gross national product	90	90	72	75	84	92	100	113	126
Consumption	66	69	59	58	60	63	66	71	71
Private gross capital formation[a]	11	8	2	5	6	10	15	16	16
Government goods and services	13	13	11	12	18	19	19	26	39

[a] Includes plant and equipment, inventory changes, residential construction, and net exports and monetary uses of gold and silver.

Source: see footnote 12.

able to provide a high level of output for both the private and public sectors of the economy.[13] Despite the fact that government expenditures more than doubled from 1929 to 1937, the 23 billion RM increase in the real national product over this period was sufficient to permit a higher level of private consumption and investment than that which prevailed in the previous prosperity.[14] Consumer expenditures, which were more stable than other segments of the national product, fell by some 15 per cent during the downswing, and by 1937 had regained the predepression level. Private investment fell more precipitously but recovered at a much faster rate than did consumer expenditures. Recovery in investment activity, which had already begun in 1933, reached the 1928 peak level during 1935 and exceeded it by 40 per cent in 1938.

understate the price rise which occurred from 1933-38, and consequently the real rise in the gross national product may be overstated. However, most of my comparisons are not between 1933 and 1938, but between the 1928, 1929 prosperity and 1938. There is no presumption that the price indices in 1938 (still nearly 20 per cent below 1928) were understated with respect to 1928 or 1929.

Anyone interested in the details of the estimates may obtain them by communicating with the author.

[13] In the following discussion we shall use figures which have been corrected for price changes.

[14] National income, the index of industrial production, and employment reached their highest levels in the years 1928 and 1929. In these two years national income (measured in 1928 prices) was about 10 per cent higher than in the previous peak year—1913.

Reducing these estimates to a *per capita* basis does not significantly alter the argument because the population increased very little over the period in which we are interested. From the 1933 depression level to 1938, total *per capita* expenditures increased 35 per cent, and in that year slightly exceeded the 1928-29 amount. *Per capita* consumption expenditures declined less than total private expenditures during the depression, and by 1938 equalled the predepression figure.

These comparisons indicate that a diversion of resources from the civilian economy occurred only to the extent that a higher government share of the national product prevented the amount of goods and services going for private purposes from increasing beyond the 1928-1929 peak level. But this is quite a different order of diversion from that which many economic writers have ascribed to the German rearmament period.[15]

In stating that consumer takings in 1937 were at about the same level as in the 1928-29 prosperity, it is not implied that the same can be said about the standard of living. Pronounced changes in the composition of consumption make the validity of such comparisons doubtful.[16] My aim is to indicate only approximately the amount of current output which was being used for civilian consumption during the immediate prewar period as compared to 1928 and 1929. For this purpose the gross national product statistics are conceptually satisfactory.

Nor does it appear that the conclusion suggested by the consumer expenditure data is due to a statistical bias in the estimates. Comparison of the consumer expenditure figures with other indices, such as retail sales, the output of industrially produced consumer goods and food

[15] "The Nazis have thus had remarkable success in achieving military goals, but the results of their policies from the point of view of civilian needs are less happy . . . per capita income, including both civilian consumption and investment, had increased only 8 per cent since the depths of the depression." Maxine Sweezy, *The Structure of Nazi Economy*, p. 204.

"We conclude that because of the philosophy of the regime, German recovery was artificial almost from the first, controlled by the government and prevented from spreading throughout all industry in the manner familiar to most upswings." Kenyon E. Poole, *German Financial Policies 1932-1939*, p. 218.

"During 1934, when it (the standard of living) was about 10 per cent below the 1928 standard, the production of consumptive goods (excluding the production of goods for their army force and navy) had about reached its peak: 1935, 1936, 1937, 1938 and the first nine months of 1939 brought no increase in Germany proper." Jurgen Kuczynski, *Germany: Economic and Labor Conditions under Fascism*, p. 60.

[16] In the field of food consumption the social investigator may be on a little more solid ground. Here, there is no evidence that the German diet deteriorated in the period between 1928 and 1938. Total per capita calory consumption declined about 6 per cent from 1929 to 1933, and by 1937 was again at the prosperity standard. A more detailed comparison of 1938 and 1928 shows that consumption of beer, eggs, cheese, wheat, flour and margarine had decreased somewhat during this period. On the other hand, consumption of meat, lard, butter, fish, potatoes, rice and coffee increased. Source: *Wirtschaft und Statistik*, 1939, p. 463; *Statistisches Jahrbuch*, 1937, pp. 362-63, and 1941-42, p. 437.

consumption, or with German estimates of aggregate consumption does not indicate that they overstate consumption in 1938 compared to that in 1928 or 1929.[17]

That the level of civilian production in the late peacetime years was high can also be inferred from the level of output of civilian items which competed directly with war production for raw material use and which, therefore, should have been the first to show the impact of a large war program. Private residential construction and consumer durables are examples of such marginal items. Actually, we find that 336,000 dwelling units were erected in 1937, only one per cent below the high construction year, 1929.[18] The decline in residential construction in 1938 was less than 10 per cent. The 1938 production of automobiles for the civilian economy was at a record level and double the 1929 output.[19] The 1937 and 1938 production of such other consumer durables as furniture and radios was also appreciably above the 1928-29 level.

Since capital formation is such an important aspect of rearmament we shall examine the investment picture in some detail. The object of this investigation is to determine the extent to which investment was channelled into those sectors of the economy which would increase Germany's war production potential. In this discussion we shall deal with gross investment in construction and producer durables, and include public as well as private capital formation.

For the purpose of this investigation, investments have been classified under three group headings:[20] Armament Factories and Military Facilities; The Basic Industries; Civilian and Government Non-War. The first and second categories may be viewed as the war potential, the third as types of investment which had little or no direct relevance for war preparations. The investment figures falling under these three main categories are given in Table IV. Some of the classifications may be questioned. For example, investments in super-highways (Reichsautobahnen) appear in Group III when they were allegedly for military purposes. It appears, however, that gasoline was so short even in pre-

[17] German estimates of consumer expenditures only cover the years 1928-31 and 1938. In the former years these estimates were within a few per cent of those presented in this paper and, in the last year, about 10 per cent above. Consumer expenditure estimates for the years 1925-31 appear in *Archiv für Sozialwissenschafte und Sozialpolitik*, Bd. 67, Heft 2, April, 1932. The estimate for 1938 appears in a monograph prepared by Paul Grunig, a statistician for the Central Statistical Office.

[18] *The Effects of Strategic Bombing on the German War Economy*. p. 231.

[19] *Ibid.*, p. 281.

[20] Unfortunately there is no unequivocal method of classifying investments into war and non-war categories. Almost every investment in plant, equipment, roads, etc., has some relevance for military output. In the case of Germany the difficulty is further enhanced by the fact that the statistics do not permit as fine a breakdown of capital formation as is necessary to make the desired classification. In spite of these difficulties, however, much can be learned by classifying and studying those sub-groups of data as are available.

war years that motor transportation was quite unimportant for either industrial or military purposes. Group I, on the other hand, includes too much for all vehicle and other metalworking, electrical, and chemical plants have been classified as armament-producing plants, whether or not they were so engaged. Recognizing, however, that such a procedure

TABLE IV.—TOTAL INVESTMENT CLASSIFIED BY PURPOSE
(billions RM)

	1928	1933	1934	1935	1936	1937	1938
Group I	.8	.2	.4	1.9	3.3	4.3	5.3
Armament plants[a]	.8	.2	.4	.6	.9	1.2	1.6
Military facilities[b]				1.3	2.4	3.1	3.7
Group II	4.2	1.5	2.1	2.6	3.0	3.7	4.5
Heavy industry[c]	.9	.1	.3	.6	.8	1.0	1.3
Railroads and other transportation equipment	1.3	.6	.8	.8	.9	1.1	1.5
Agriculture	.9	.6	.7	.8	.9	1.0	1.1
Public utilities	1.0	.2	.3	.4	.5	.6	.7
Group III	8.6	3.3	5.4	6.6	7.9	7.9	8.6
Other industry[d]	.9	.3	.3	.4	.5	.6	.8
Residential construction	2.8	.9	1.4	1.6	2.2	2.1	2.2
Commercial, handicraft, miscellaneous	1.7	.7	.7	.8	.9	1.0	1.0
Roads	.5	.3	.6	.9	1.2	1.2	1.8
Other government[e]	2.7	1.1	2.4	2.4	3.2	2.9	2.9
Total	13.7	5.1	8.3	11.1	14.2	15.9	18.5

[a] Electrical machinery, vehicle, locomotive, naval, metal-working, optical and chemical industries.

[b] Barracks, airfields, fortifications, etc. (more than 2 billion RM were spent on fortifications in 1938 and 1939).

[c] Steel, coal, construction materials, and rubber industries.

[d] Clothing, food, printing and publishing, linoleum, paper and musical instrument industries.

[e] Postal system, trams and subways, waterways, government and partly buildings, municipal improvements, etc.

Source: see footnote 12.

is necessarily arbitrary and that it must be accommodated to the form in which the data are published, it nevertheless provides a reasonable basis for analyzing the nature of German investments.

It will be observed that in the years 1933-38 more than 50 per cent of total public and private investment fell into Group III. Even 1938, the last peacetime year, the current value of these non-war types of investment was as large as in 1928. Measured in constant prices, their real volume was 20 per cent higher in 1938 than it had been in 1928. Public expenditures on roads and buildings formed the largest component of Group III. In the years 1936-38 such undertakings averaged

about 4.5 billion marks annually—nearly 5 per cent of Germany's gross national product.

Those types of investment classified under Group I and Group II make up Germany's total war potential. The industrial war potential, usually referred to as *the* war potential, is a narrower concept, excluding military construction. Inspection of the figures in the above table shows investment in armament plants and Germany's basic industries to be a surprisingly small part of total investment. Investment in Group II industries, which included the iron and steel plants, the coal mines, the transportation system and public utilities, was exceeded every year by expenditures on road construction and government buildings. Comparing the Group II totals for the years 1933-38 with the 1928 figure, we find that it was not until 1938 that the 1928 level was surpassed. Investment expenditures on that part of Group I which we have called armament plants were, relatively speaking, exceedingly small. Annual expenditures on these facilities for the years 1933 through 1938 averaged only half as much as those on residential construction. Thus, inspection of Germany's prewar pattern of investment shows that there was no pronounced concentration of investment in those activities associated with economic preparations for war.

The fact that private capital formation was generally high in the latter part of the 1930's only indicates that Germany was experiencing a substantial economic recovery. That investment expenditures are the most dynamic component of the national product, falling furthest during the downswing and increasing fastest during the upswing, is a well-established proposition in business cycle theory. Calculations of the German Business Cycle Research Institute show that from 1931 through 1936 private gross investment in plant and equipment was not sufficient to maintain industrial capacity. Net industrial disinvestment during this period was put at nearly 3 billion marks.[21] A large volume of plant expenditures was required in the years after 1936, therefore, merely to offset previous capital consumption and to provide for current maintenance. Thus, gross industrial investment in 1938 of 3.7 billion marks, although 50 per cent greater than in 1928, can hardly be viewed as abnormal.[22] This year was preceded by only one year of positive net investment whereas in the previous decade net investment had increased steadily since 1923.[23]

Summing up our observations on the composition of Germany's prewar gross national product: It is apparent that an enormous diversion of resources from the civilian to the war sector of the economy did not occur, for both consumption and non-war types of investment reached

[21] *Statistisches Jahrbuch*, 1939-40, pp. 583, 584.
[22] *Loc. cit.*
[23] *Loc. cit.*

the prosperity levels of 1928 and 1929. This is also true in regard to government non-war expenditures.[24] Thus, it is only possible to speak of a diversion of resources in the sense that private expenditures did not rise above the 1928-29 peak amount to the full extent of the increase in the gross national product. This does not mean that the economic achievements of the recovery period were unimportant for

TABLE V.—GOVERNMENT EXPENDITURES FOR GOODS AND SERVICES
(billions RM)

Fiscal Year Beginning April	Total Government Expenditures for Goods and Services	Armament Expenditures
1933 and 34	21	5
1935	14	6
1936	17	10
1937	21	14
1938	30	16
Total	103	51

Source: These figures have been obtained by consulting the war finance discussions of the Council of Ministers contained in *Nazi Conspiracy and Aggression* (Washington, 1946). In answer to an American interrogation, Schacht stated that he and von Krosigk (Minister of Finance) placed total armament expenditures at 45 billion RM. Defining armamentexpenditures to include total net private investment will add less than 2 billion RM to this figure.

Germany's war preparations. Full employment, a high level of total output, and a large production of capital goods, are in themselves important contributions to a nation's war-making ability.

III. *The Magnitude of War Preparations*

At the outset it is necessary to define what we shall mean by armament expenditures. There is no unequivocal definition. We shall use the term to include military pay and rations, and public expenditures on military establishments, fortifications, war material, and armament plants. This roughly corresponds to the definition used by the War Production Board in this country.

Most discussions of Germany's war preparations begin with Hitler's boast that the nazis had spent 90 billion RM on rearmament. It is paradoxical that this statistic was accepted quite uncritically at a time when nearly all other German data was suspect.[25] The reason, of course, is simply that it was commonly believed that preparation for war

[24] See Table V, above.

[25] In calculating a residual of private investment and consumption, Mrs. Sweezy uses a figure of 90 billion (*op. cit.*, p. 205). Nathan uses his own figure of 75 billion RM, but thinks that it is understated (*op. cit.*, p. 88). Neither of these authors defines armament expenditures.

claimed the highest priority on the economy. Actually, according to our definition, 51 billions were spent on rearmament in the six fiscal years ending March 31, 1939, and about 55 billions up to the outbreak of war. This corresponds to a little less than 50 per cent of total public expenditures for goods and services, and about 10 per cent of the gross national product produced during this six-year period. A German economist has pointed out that Hitler's 90 billion figure would imply a higher ratio of total output going for war purposes than was reached until the latter part of the war. On the deception of foreigners he remarks "Public views of the scale of armament were very much exaggerated. The German government of the time did nothing to contradict the exaggerated ideas; on the contrary they probably seemed to be desirable as propaganda, producing the illusion of a warlike strength which in reality was not available on that scale."[26]

It is convenient to divide the discussion of rearmament into two periods: that which occurred before 1936 and that which occurred from 1936 to the beginning of the war. Up to the time of the German reoccupation of the Rhineland in the spring of 1936, rearmament was largely a myth. In the three years ending March 31, 1936, some 11 billion RM were spent; more than one-half of this in the fiscal year 1935-36. In other words, about 3 per cent of the total national output went for war purposes. It is perhaps easier to assess the state of preparedness by looking at the size of the army. At this time the German army was no larger than the French; it numbered less than 500,000 men and was composed of the equivalent of some 25 full strength divisions.[27] Before 1936, plans for the speedy creation of a large offensive army did not exist. At the time of conscription legislation was passed in March, 1935, it was planned to bring the army up to a strength of 700,000, and that only by 1939.[28]

The second phase of German rearmament began in the summer of 1936 when Hitler decided to start rearming on an intensive scale. Undoubtedly this decision was influenced by German intelligence reports which placed the strength of the Russian army at nearly one million. Such "Bolshevist" superiority was greatly feared, and preparations were begun under the Second Four-Year Plan to assure German dominance of Europe.

The language of the memorandum delivered to Goering on his appointment as Plenipotentiary of the Second Four-Year Plan in October,

[26] Rolf Wagenfuehr, *Aufstieg und Niedergang der Deutschen Rustung* (Berlin, March, 1945), p. 8.

[27] *German Army Mobilization,* Intelligence Division, War Dept. (1946). This study is based on captured German documents. The estimate of French military strength comes from Reynaud, *Le Problème Militaire Française,* 1937, p. 27. Reynaud's estimate of German strength at this time was 800,000; nearly twice the actual size.

[28] *Ibid.,* p. 9.

1936, leaves no doubt as to Hitler's desire to begin full-scale preparation for war.[29] This document begins with Hitler's declaration that war is inevitable. In the first place, Hitler asserts "it will be Germany's task to defend Europe against Bolshevism"[30] and secondly, "a final solution of the food problem only can come through an expansion of living space" (Lebensraum). Following these pronouncements Hitler denounced Schacht's Economics Ministry for sabotaging rearmament, accusing Schacht of having no comprehension of economic mobilization. Finally Goering was given two commands: (1) "The German army must be ready for commitment in four years"; (2) "The German economy must be ready for war in four years."

Hitler did not indicate the strength of military forces, or the size of the economic effort which would be required to prepare Germany for its "historic task." Nor, to my knowledge, has such a plan been found in the German archives. It is difficult, therefore, to gauge just how high the nazis had set their sights. (We shall return to this subject later.) But, at any rate, it does not appear that the extent of mobilization before the actual outbreak of war measured up to the Fuehrer's edict of "unconditional subordination of all other desires to preserve Germany's national existence."

In the three fiscal years ending March 31, 1939, Germany spent 40 billion RM for rearmament. In 1938-39, the last peacetime year, military expenditure amounted to 16 billion marks, a sum equivalent to 15 per cent of Germany's gross national product. Actually, the share of the German national output going for armaments was not much higher than that of the Allies prior to their entry into the war. Total British war expenditures in 1939 constituted nearly 15 per cent of her gross national product, and were only slightly less than Germany's.[31] In 1941, the year before the United States went to war, the war expenditure ratio was about 10 per cent—and would imply a higher absolute volume of armament expenditures than Germany's.

Comprehensive statistics on munitions production in the immediate prewar years are lacking. Such data on output or stocks as are available indicate that the production of war goods, like total military strength, has been considerably exaggerated.

[29] A photostat of this document is in the files of the United States Strategic Bombing Survey.

[30] ". . . the world is drifting with ever increasing speed into a new conflict, whose most extreme solution is called Bolshevism. One has to compare the Red Army as it really is today with the assumptions of the military ten or fifteen years ago to gauge the dangerous extent of this development. Germany will have to be considered as the focal point of the Occidental world against Bolshevist attack."

[31] *World Munitions Production 1938-1944*. War Production Board. The definitions of war production and gross national product are roughly comparable to those which have been used for Germany.

The nazis placed heavy emphasis on the importance of air power, allocating nearly one-half of prewar military expenditures to the Luftwaffe. A large aircraft output was therefore to be expected. Total monthly aircraft production[32] rose from 30 in 1933 to 425 in 1936 and remained at this level through 1938. In 1939, total output rose by 60 per cent. At the outbreak of war, output of combat types was 500 a month, 60 per cent of the production rate credited to Germany by British Intelligence.[33] Germany entered the war with an air force of 1,000 bombers, and 1,050 fighters, which was still not an inconsiderable number compared to the air strength of her enemies.[32]

Before 1938 Germany produced only the very light Mark I and Mark II tanks—types which were outmoded soon after the beginning of the war. Production of the Mark III began in 1938, and the Mark IV, in 1939. In the last three months of 1939 Germany produced 247 tanks,[34] and 45 per cent of the Intelligence estimate of German production.[34]

A more dramatic indication of Germany's state of preparedness is to be found in the 1939 plot against Hitler. In the summer of 1938 Hitler informed his confidants of his plans to invade Czechoslovakia if it became impossible to strike a bargain with England. This plan was opposed by a group of high army and civilian officials. Included in the group were General Beck, Chief of Staff, General von Witzleben, Commander of the Third Army, General Thomas, Production Chief of the High Command, former Economics Minister Schacht, and Goerderler, former Lord Mayor of Leipzig. Some of these names will be recognized as principals in the 1944 Plot. The opposition of this clique was based on the assumption that the English would not back down, and that the Wehrmacht was totally unprepared to withstand a coalition of European powers. (In the fall of 1938 Germany had 35 infantry and 4 motorized divisions and according to testimony of German generals, these were neither fully equipped nor fully manned.) Foreseeing another Versailles, these generals formed a conspiracy to seize Hitler and remove the nazis from power by a military *coup d'état*. According to the documentary evidence Theodore Kordt, the German chargé in London, informed Halifax of the plot, urging Britain to stand firm. As it was planned, Beck resigned early in September when he was informed of Hitler's certain decision to take action. Before the date planned for the conspiracy, however, it was learned that Chamberlain would go to Godesberg on September 13. This knowledge seemed to indicate that their original premise was wrong; that Hitler's bluff would be success-

[32] *The Effects of Strategic Bombing*, p. 149.

[33] *An Appraisal of Pre and Post Raid Intelligence*, U. S. Strategic Bombing Survey (Washington, 1945).

[34] *Loc. cit.*

ful. The plot was called off and von Halder, one of the conspirators, accepted Beck's vacated post.[35]

IV. *The Factors which Limited Economic Mobilization*

In discussing the reasons why Germany's preparations were not greater, it is necessary to separate political and military from economic factors. The latter supply us with the immediate reasons for Germany's unpreparedness; the former, with the more ultimate causes. We can, perhaps, make this distinction more clear by attempting to answer two different sorts of questions: (1) Why did the Germans not prepare for a major war—on the enormous scale which popular opinion assumed them to be preparing? (2) Why were their preparations not tolerably larger—say, 25 per cent? We shall begin with the second question.

A nation's real war potential is limited by two factors; the total amount of production which can be obtained from its resources, and the share of this output which can be converted to war purposes. In the prewar years, at least, there is no evidence that armaments output was circumscribed by either of these factors.

In the first place, it is clear that a much larger share of the 1938 national product could have been used for war purposes. Civilian consumption and investment were, as we have seen, at the 1928-29 levels; while, at the same time, the government was undertaking a huge non-war program. Thus it would appear that it might have been possible for the Germans to have doubled war output by cutting the overall level of civilian production by 10 or 15 per cent.

Nor does it appear that it was at this time impossible for the Germans to have secured a larger war output through an expansion of their national product. Although full employment had been reached before 1938, and the 1929 level of production was exceeded by 25 per cent in this year, Germany still had not exhausted her expansionary possibilities. Formal proof of this proposition depends on an examination of the manpower and raw material situation, but its plausibility can be gauged by reference to the wartime performances of Britain and the United States. In these countries it has been quite clearly demonstrated that full employment did not signify a capacity level of production. Subject to outside pressure, production showed an elasticity which was astonishing. This also was shown at a later date in Germany.

We may sum up this argument by saying that although it may not have been possible to increase war output while maintaining all types of civilian output (automobiles and refrigerators, for example), op-

[35] An account of this plot is to be found in the "Twentieth of July," Franklin Ford, *Am. Hist. Rev.* (July, 1946). Also consulted were interrogations of Thomas, Schacht, von Halder and documentary evidence presented at the War Crimes Trials.

portunity still existed as late as 1938 for increasing military preparations without causing an appreciable decline in the general level of civilian output. It is seen, therefore, that "real" factors cannot explain why Germany did not produce more war material.

The explanation of Germany's failure to prepare on a much larger scale is essentially a financial one. The German leaders simply did not at this time, understand the elementary economic lesson that "a nation can finance everything which can be produced."[36] As will be shown, financing a higher level of war expenditures by raising already high tax rates was not regarded as expedient. And procuring additional funds by borrowing, would, it was thought, destroy confidence in the currency and lead to an inflation. This fear of inflation, as we have seen, weighed heavily in the policy decisions of the whole decade: it was an important consideration in the decision of the Brüning government against devaluation and coincidentally in the adoption of the policy of forced deflation; it led to the retention of this policy after the inflationary argument was, from an economic standpoint, no longer valid; it prevented the nazis from reducing taxes when their primary aim was a speedy recovery. It is not surprising, therefore, that financial considerations impeded rearmament.

One of the strongest exponents of this school of financial conservatism was Schacht. Although he was already in disfavour with Hitler by 1936, Schacht remained Minister of Economics until August, 1937, and president of the Reichsbank until January, 1939. And until his dismissal from the Reichsbank, his financial views pretty well dominated nazi economic policy. Schacht's testimony indicates that he was dismissed, not because he opposed rearmament on social or political grounds, but because large rearmament expenditures were inconsistent with his views on sound finance.[37]

By 1937, he stated, the financial position of the Reichsbank had become so precarious that he advised Hitler that additional credits for rearmament could not be raised. Hitler finally persuaded him to provide the government with another three billions, but only on the condition that this was to be the last. After March, 1938, Schacht stated that he refused to give another penny for rearmament, and in January, 1939 his one-year appointment was not renewed. There is nothing in the documentary evidence which would deny the veracity of Schacht's story.

[36] Mr. Nathan's conclusion that Germany had learned this before the democracies is hardly valid. *Op. cit.*, p. 90.

[37] This account of Schacht's dismissal is taken from his testimony to Clifford Hynning of the United States Group Control Council; from interrogation reports of the United States Strategic Bombing Survey made by Paul Baran and the author and from the record of his testimony at the International Military Trial.

At the meeting of the Council of Ministers on May 12, 1936, the possibility of increasing armament expenditures was discussed.[38] The Minister of Finance, von Krosigk, did not think that an additional 6 or 7 billions could be raised by taxes. In conformity with universal standards of political behaviour this was denied by none of the ministers. This passed the responsibility for obtaining more funds to the Reichsbank; Schacht summed up the past accomplishments of the Reichsbank, declaring that with unswerving loyalty to the Fuehrer he had raised 11 billions for rearmament and re-employment. The Reichsbank could go on, he said, and raise some 2 billions annually, but, he asserted, the money market would not support the 8 or 9 billion requested. If the Reichsbank were to be pushed further, Schacht left no doubts as to his own position: "Dr. Schacht will never be a party to an inflation; the Fuehrer also had decided in this sense. The danger of such a development is imminent. If a road is to be taken, which contains this danger, Dr. Schacht would like to drop out in time, so that he does not disturb the new course."[39]

Goering voiced his skepticism by commenting that "measures which in a state with a parliamentary government would probably bring about inflation do not have the same results in a totalitarian state." But he did not press his argument further.

It might be pointed out that Schacht quite successfully withstood the pressure for higher armament expenditures. In the fiscal year 1936-37, they were only 4 billions more than in the previous year.

Whenever the question came up, Schacht took the same firm position of the danger of public deficits. At a meeting of the Council of Ministers in May, 1937,[40] Goering began by asking what objections there might be to producing substitute materials in the Reich. Schacht replied that there were no theoretical objections, that self-sufficiency was absolutely necessary, but that on the practical side there would be serious difficulties—the question of finance. "Providing money by taxing capital is impossible. The circulation of money cannot be increased beyond a certain amount. Previous measures have been executed correctly and without danger to the monetary value. A further increase seems precarious, a matter of confidence."[41]

By 1938, when Hitler was completely out of patience with Schacht's economic ideas, it might have been expected that the nazis would have at last freed themselves from their financial yoke. But the evidence does not confirm this suspicion.

[38] *Nazi Conspiracy and Aggression*, pp. 868-72.

[39] *Ibid.*, p. 869.

[40] *Ibid.*, pp. 878-84.

[41] *Ibid.*, p. 879. It may be noted that the debt increased by more than 250 billion RM during the war, with neither a substantial rise in prices, nor a financial collapse.

During the fall of 1938, when the Sudetenland issue was pending, military expenditures were increased sharply. Although expenditure data for these months are not available, they could not have been very large, which is shown by the fact that from April through October military expenditures totalled only some 9 billions. On the 7th of December an order signed by Keitel went to the commanders of the three services stating that: "The strained financial situation of the Reich makes it necessary that for the rest of the current fiscal year 1938-39 the expenses of the Armed Forces, which in the last months under the strain of extraordinary circumstances have undergone a considerable increase, should be lowered again to a level, which would be tolerable for some time."[42] It was ordered that total military expenditures for the last five months of the fiscal year were not to exceed 6.9 billion. The provisional budget for 1938-39 was set at 11.5 billion RM, 30 per cent below expenditures of the previous fiscal year.[43]

For the purpose of explaining why Germany's war preparations were not larger, the financial bottleneck provides us with the necessary, but not the sufficient conditions. For, if additional funds could not be obtained through borrowing or taxation, it still would have been possible to obtain these by cutting non-war expenditures. There were some 15 billion RM, in the fiscal year 1938-39, nearly 75 per cent greater than when the nazis came into power. Especially prominent in the civil budget were public investments in highways, party buildings, municipal improvements and the like.[44]

If non-war expenditures were not reduced, it was not the fault of Schacht; in every discussion of public finance he preached economy in government expenditures. In proposing specific cuts, however, he was invariably opposed by some faction of the party, and succeeded only in getting himself thoroughly in disfavour with the nazi politicians. It was, in fact, even difficult for Schacht to compel the semi-autonomous political organizations to submit their budgets to the Ministry of Finance.[45]

When rearmament was speeded up during the time of the Czech crisis, Goering began to take a firmer stand on the reduction of non-war expenditures. But not much was done in this respect before the beginning of the war. Goering's speech before the Air Ministry in October, 1938, was a forecast of action which was to come only at a later date.

He (Goering) is going to make barbaric use of his plenipotentiary power

[42] *Ibid.*, p. 907.
[43] *Ibid.*, p. 908.
[44] See Table IV, p. 66.
[45] *Nazi Conspiracy and Aggression*, pp. 845-46 and 878.

which was given to him by the Fuehrer. All the wishes and plans of the state, party and other agencies which are not entirely in this line have to be rejected without pity. . . . He warns all agencies, particularly the Labor Front, from interfering with these proposals in any way. He is going to proceed ruthlessly against every interference on the part of the Labor Front. The Labor Front would not receive raw materials and workers for its tasks any more. Similarly all other party requirements have to be set aside without consideration. At the present time the plants should not be burdened with unnecessary demands, such as athletic fields, casinos or similar desires of the Labor Front.[46]

This discussion of financial impediments to rearmament provides some insight into nazi politics. The fear of increasing the debt because it would destroy confidence, the unwillingness to raise taxes, the difficulties of reducing particular types of government expenditures—all indicate that Hitler was less able to subordinate the various private interests to his central task of preparing for war than has been commonly assumed. It will be the task of the political experts to reassess the nazi political system, to find out the extent to which Hitler had to compromise with various interests, and to identify these interests. When this has been done, the nazi economic picture will be clearer.

These fiscal considerations do not explain, however, why Germany did not undertake really large-scale preparations for war. The various minutes of meetings pertaining to the discussion of the rearmament question indicate that the nazi leaders were thinking only in terms of increasing military expenditures by a few billion reichsmarks, or of adding several divisions to the army. It is unlikely, therefore, even if finances had not stood in the way, that the rearmament program would have been more than some 20 or 30 per cent larger.

The fundamental reason why large war preparations were not undertaken is simply that Hitler's concept of warfare did not require them. Documentary evidence and interrogation of his confidants indicate that for the fulfillment of his territorial desires, Hitler did not expect to fight a protracted war against a coalition of major powers. Rather, he planned to solve Germany's living space problem in piecemeal fashion—by a series of small wars. His strategy, as it developed, was to undermine an enemy's internal and external political unity, to intimidate him with threats of military destruction, and if this were not successful, to force a speedy capitulation by Blitz warfare. All this was to occur in so short a time that the democracies could be presented with a *fait accompli* while they were still debating whether or not to intervene.[47] Italy's experience against Abyssinia, the occupation of the

[46] Notes of speech by Goering at Reich Air Ministry, *ibid.*, p. 901.

[47] The directive for the operation "Green" (conquest of Czechoslovakia) stated: ". . . it is essential to create a situation within the first four days which plainly demonstrates, to hostile nations eager to intervene, the hopelessness of the Czechoslovakian military situation." *Ibid.*, p. 311.

Rhineland, the conquest of Czechoslovakia, all indicated that the process could be repeated against Poland, the Balkans, and after a period of consolidation, against the coveted Ukraine.

The only nations which could be considered as threats to German expansion were the United States, Russia, France and England. Before the outbreak of war, the possibility of American intervention was considered remote. Although Hitler frequently spoke of Germany's future task of defending Europe against Bolshevism, Russia was not considered an immediate threat. Russia could be dealt with in the future, after Germany was able to draw on the war potential of Western Europe. For this conflict Hitler counted on the neutrality, if not the active participation, of the democracies. Hitler always took England and France into account in his war plans, but he did not think that they would intervene.[48] England, he thought, would not be able to fight without the support of the colonies. And he doubted if they would support the Mother Country in a European conflict.[49] Besides, he thought it unlikely that England would wish to destroy Europe's "bulwark against Communism." As early as 1937 Hitler saw the possibility of a social and political decay in France which would leave her incapable of offering active resistance.[50]

Hitler's strategy, then, did not involve large war preparations, but only immediate military superiority over France and England. For this, 50 or 60 well-trained divisions and an air force of 2,000 planes were regarded as adequate. This hypothesis was confirmed by the first two years of fighting.

The faulty appraisal of the prewar nazi economy was primarily due to the inability of political and economic writers to appreciate the economic significance of this Blitzkrieg strategy. They failed to see that such a strategy did not involve a large use of resources and that it permitted, together with minimal war preparations, a prosperous civilian economy. Another reason why their economic picture was distorted was the implicit belief that nazis would make their financial policy subservient to the economic rearmament program rather than having to adapt the scale of war preparations to the principles of financial conservatism.

[48] Hitler was confident that the invasion of Poland would not bring England and France into the war, and later, after Poland was conquered, he expected that they would agree to his peace terms.

[49] *Ibid.*, pp. 297-304.

[50] Conference of the Reichskanzlei, November, 1937. "Should the social tensions in France lead to an internal political crisis of such dimensions that it absorbs the French army and thus renders it incapable for employment in war against Germany, then the time for action against Czechoslovakia has come." *Ibid.*, p. 301.

THE ROLE OF INCOME DETERMINATION IN REINVESTMENT AND INVESTMENT

By WALTER FROEHLICH*

Whether the use of any specific accounting device, or any specific method of taxing business incomes, tends to aggravate or to smooth cyclical fluctuations depends largely on the impact of such device or method on the stream of gross investment. An analysis of the influence of new (net) investment alone is not sufficient (Part I). Different income concepts used by the accountant or by the tax statute for determining net income (Part II) will be reflected in different ways in new investment and reinvestment according to how prices and interest rates and their respective changes are employed in the definition of net income (Part III). The use of accounting devices and tax methods applying specific income concepts may cause significantly different "practical" results (Part IV).

I

The usefulness of the concept of net income as a tool of economic reasoning in regard to dynamic models has been denied by no lesser authorities than Hicks and Hayek;[1] the latter goes so far as to say that the distinction between replacement and investment as different activities has no relationship to anything in the real world.

Individuals and business firms, however, do consider net income as a significant economic datum. Their *willingness to invest* takes a different form and intensity from their *willingness to replace;* the distinction is partly dependent on their concept of net income.

The relation of planned consumption to net income of individuals, which has been very widely discussed of late,[2] is less important than the relationship businessmen and corporate management observe between planned reinvestment and net income.

Investment goods as such are determinative for customary aggregate

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[1] F. R. Hicks, *Value and Capital* (Oxford, 1939), p. 177; F. A. Hayek, *Pure Theory of Capital* (London, 1941), p. 336.

[2] For statistical derivation of the consumption function using money or real terms, etc., *cf.:* W. S. Woytinsky, "Relationship between Consumers' Expenditures, Savings and Disposable Income," *Rev. Econ. Stat.*, Vol. XXVIII, No. 1 (Feb., 1946), pp. 1 ff.; G. Katona and R. Likert, L. H. Bean, I. Friend, E. G. Bennion, D. S. Brady, "Five Views on the Consumption Function," *Rev. Econ. Stat.*, Vol. XXVIII, No. 4 (Nov., 1946), pp. 197-224; also W. Fellner, *Monetary Policies and Full Employment* (Berkeley, 1946), pp. 55-73.

analysis. The flow of investment goods (gross investment) can be identified as a reinvestment stream and a net investment stream: the reinvestment stream "maintains capital"; the net investment stream "adds to existing capital." Reinvestment may be further characterized as either a *replacement*-reinvestment or as a *transfer*-reinvestment. The replacement-reinvestment makes an identical substitution; the transfer-reinvestment embodies some shift to other goods.

Generally speaking, the willingness to reinvest is stronger than the willingness to make new investments out of income. Changes in the net investment and reinvestment stream might occur at the same time, but in different directions.[3] The magnitude of investment as well as of reinvestment does not always rise and fall simultaneously, *e.g.*, when the fluctuations are due to changes in the interest rate. Investment and reinvestment are not necessarily correlated positively with each other, since they are independently related. Furthermore, the relation between them may differ if different income concepts are employed, or if different phases of the cycle are considered.

Decisions of businessmen are doubtless to some varying degree guided by the accounting process. So far as legal restrictions are concerned, decisions in turn are based to a considerable extent on so-called sound accounting practice. Accounting practices and their bearing on determination of income in the different stages of the business cycle have been discussed in connection with the derivation of national income and national capital figures from the accounting data of business firms.[4] Some writers emphasize the influence of accounting, that is, of *recorded* profits and losses, on the investment decision through the use of the customary markup method, which depends on accounting and in turn determines income.[5] Others emphasize the influence of accounting on the investment flow through the impact of accounting on prices of securities *via* the earning ratios and thus on the possibility of issuing new securities.[6] Yet it is equally important to evaluate the influence of different income concepts on the gross investment stream. Assuming a

[3] R. Frisch, "The Interrelation between Capital Production and Consumer Taking," *Jour. Pol. Econ.*, Vol. XXXIX, No. 5 (Oct., 1931), p. 653; B. Caplan, "Reinvestment and Rate of Interest," *Am. Econ. Rev.*, Vol. XXX, No. 3 (Sept., 1940), pp. 561-68.

[4] Conference on Research in National Income and Wealth, *Studies in Income and Wealth* (New York, Nat. Bur. of Econ. Research), 1937-1943: C. Warburton, I, pp. 67-110, C. Shoup, I, pp. 251-304, R. Blough and W. W. Hewitt, II, pp. 191-239, R. W. Goldsmith and W. Salant, III, pp. 220-43, W. D. Hance, VI, pp. 239-76; S. Fabricant, *Capital Consumption and Adjustment* (New York, 1938); S. Kuznets, *National Income and Capital Formation* (New York, 1937) and *Commodity Flow and Capital Formation* (New York, 1938).

[5] Conference on Price Research: Committee on Price Determination: *Cost Behavior and Price Policy* (New York, Nat. Bur. of Econ. Research, 1943), Part III and Appendix C.

[6] N. S. Buchanan, "Toward a Theory of Fluctuations in Business Profits," *Am. Econ. Rev.*, Vol. XXXIV, No. 4 (Dec., 1941), p. 751.

given *willingness to reinvest*, different income concepts invite varying amounts of reinvestment. This might supplement a discussion evolving from the *willingness to invest*.

II

Our first step, then, is to survey systematically the different income concepts. Since the bulk of income relevant to our discussion is income from business, we can neglect income from labor. The relevant income concepts imply that income be defined either as that which remains at the disposal of the recipient after capital is maintained or as that flow of services which can be maintained indefinitely.[7] Clarifying the distinctions of Hicks, which allow for money terms and real terms,[8] the four main concepts of income then become: Definition A, Receipts with expectations of maintaining intact the value of capital in terms of money (Hicks, Income No. 1); Definition B, Receipts with the expectation of spending the same amount in terms of money during the following periods (Hicks, Income No. 2); Definition C, Receipts with the expectation of maintaining intact the value of capital measured in real terms (not mentioned by Hicks); Definition D, Receipts with the expectation of spending the same amount measured in real terms during the following periods (Hicks, Income No. 3).

At present accountants stress the income point of view (*i.e.*, the income flow as in concepts B and D) as against the balance sheet point of view (*i.e.*, the maintenance of capital as in concepts A and C). They find that the former point of view has become more important in modern accounting practice.[9] This distinction is similar to that made by Hayek, who stresses the flow of earnings, in contrast to Pigou, who stresses the intactness of capital.[10] Any final statement in regard to income presupposes the enterprise liquidated and all relations between owners definitely severed; otherwise, all statements are estimates only of different degree of reliability.[11]

Concepts A and C include "non-recurrent" receipts and are not de-

[7] E. Lindahl in *Essays in Honour of Gustav Cassel: "The Concept of Income"* (London, 1933), p. 399.

[8] J. R. Hicks, *op. cit.*, pp. 171-77.

[9] S. Gilman, *Accounting Concepts of Profit* (New York, 1939), p. 25.

[10] F. A. Hayek, "The Maintenance of Capital," *Economica*, Vol. II, No. 7 (Aug., 1935), pp. 241-76; A. C. Pigou, "Maintaining Capital Intact," *Economica*, Vol. VIII, No. 31 (Aug., 1941), pp. 271-75; F. A. Hayek, "Maintaining Capital Intact," *Economica*, Vol. VIII, No. 31 (Aug., 1941), pp. 276-80; J. R. Hicks, "Maintaining Capital Intact—A Further Suggestion," *Economica*, Vol. IX, No. 34 (May, 1942), pp. 174-79. *Cf.* also F. H. Knight, "The Theory of Investment Once More: Mr. Boulding and the Austrians," Vol. L (Nov., 1935), pp. 36-67.

[11] J. B. Canning, *Economics of Accountancy* (New York, 1929), p. 123.

pendent on changes of interest rates, assuming the income receiver starts and ends the period with cash holdings only. In this case they are identical if the value of money is stable. Concepts B and D exclude "non-recurrent" receipts; they are identical when the value of money and the rate of interest are stable.

These four concepts point up the basic distinctions, but further dis-

TABLE I.—CHARACTERISTICS OF AN INCOME CONCEPT

Group I: Basic distinctions

A. Leaving the capital "intact"
- 1. Measuring the income
  - (a) In terms of money
  - (b) In real terms of the type
    - 1. .....
    - 2. .....
    - 3. .....
- 2. Measuring what is left intact
  - (a) In terms of money
  - (b) In real terms of the type
    - 1. .....
    - 2. .....
    - 3. .....

B. Leaving future earnings "intact"
- 1. Measuring the income
  - (a) In terms of money
  - (b) In real terms of the type
    - 1. .....
    - 2. .....
    - 3. .....
- 2. Measuring what is left intact
  - (a) In terms of money
  - (b) In real terms of the type
    - 1. .....
    - 2. .....
    - 3. .....

Group II: Type of knowledge of reality to be included for income determination
1. Completed transactions of the subject only
2. (1) and transactions of the subject for future delivery
3. (2) and spot market prices
4. (3) and quoted prices for future delivery
5. (4) and expectations proper
   - a. To be realized within
     - aa. .....
     - bb. .....
     - cc. .....
   - b. Subjective probability of being within a range of at least
     - aa. .....
     - bb. .....
   - c. Uncertainty in regard to
     - aa. Amount only
     - bb. Occurrence only
     - cc. Amount and occurrence
   - d. Reliability of estimate at least
     - aa. .....
     - bb. .....

Group III: Time point for knowledge
1. At the beginning of the period
2. At the end of the period
3. At the end of the following period
4. .....

Group IV: Subject of knowledge
1. The individual
2. The person responsible for him

Group V: Income period
1. 1 year
2. 2 years
3. .....

tinctions are needed. We shall arrange the characteristics of an income concept in five groups, every income concept being a combination of such characteristics drawn from every group. The discussion which follows should clarify the necessary requirements, which will be finally summed up in Table I.

Obviously, owing to the ambiguity of the expression "real terms" and

the difficulties of measurement, a whole set of different concepts arises according to the different methods used in identifying real terms (characteristics under IA and IB, Table I.) Real terms do not necessarily denote average prices of the same goods. There also exist different methods in constructing indices or in determining "wage units" if the latter are used for measurement.

Expectations in regard to future earning power (future income) determine what has to be left "intact" and thus, indirectly, what is left to qualify as income. This applies to expectations about the future development of prices (definitions C and D) or of interest rates (definitions B and D). But when transactions are not completed and the enterprise is not liquidated, expectations are necessary also as the basis for judgment in regard to the value of capital in terms of money (definition A).

It should be noted that we consider expectations only in so far as they form part of the considerations used in defining income and thus forming the basis of the distinction between investment and reinvestment[12] (characteristics under II in Table I). We do not discuss here expectations in so far as they influence the numerical value of propensities, *e.g., via* liquidity preference, etc.

Expectations should be dated (Group III in Table I); that is, a certain time point should be assigned to them in order to determine clearly the economic "horizon" or "prospect," *e.g.*, time point 1: beginning of the period (*ex ante*), time point 2: end of the period (*ex post*), time point 3, 4, 5 . . . : end of the next following or any following period.

Our expectations will be fulfilled, unfulfilled, or still uncertain at any such point. As far as *ex post* income is concerned, it is true that at time point 2 certain expectations definitely turn out to have been right or wrong, but certain others will still be uncertain and the same is true of any following time point, although to a decreasing extent. Thus all income concepts, including *ex post* concepts, will rely on expectations.[13] Every income concept has to denote the time point at which the expectations are formed. Common practice may allow making different parts of the estimate at different times, as, *e.g.*, all accounting which makes certain evaluations at the moment of transaction or entry into the books, without much concern for final corrections.

The table of possible properties of income concepts surveys the dimensions of the concept, and thus provides the basis for showing all possible interrelations between the reinvestment and investment

[12] *Cf.* C. Warburton, "The Misplaced Emphasis in Contemporary Business-Fluctuation Theory," *Jour. of Business*, Vol. XIX, No. 4 (Oct., 1946), p. 201, with estimates of magnitudes involved.

[13] J. B. Canning, *op. cit.*, p. 124.

stream. It should be noted that income concepts often are "inconsequential" or mixed, using one set of characteristics in one respect (*e.g.*, as to gains), another in another respect (*e.g.*, as to losses), as all concepts do which rely for inventory evaluation on historical cost or market, whichever is lower.

Referring to Table I, combinations of characteristics will be obtained giving rise to many variations upon the four main concepts of income. Not all concepts will be of practical importance, but the important concepts can be located within the framework of our table.[14] Through analysis of all possible dimensions of the income concept, the influence of price changes can be explored, as well as of other changes on the size of recorded income in the different phases of the business cycle.

TABLE II—INVENTORY REVALUATION, SAVINGS, PROFITS

(In million dollars)

	Revaluation of Inventories	Net Business Savings		Business Profit or Loss	
		Estimated	Adjusted	Estimated	Adjusted
1929	− 712	2.583	3,295	8,552	9,264
1930	−4,331	4,903	572	912	5,243
1931	−3,308	−8,052	−4,774	−3,718	− 414
1932	−1,520	−8,942	−7,422	−6,193	−4,673
1933	2,440	−3,094	−5,334	− 881	−3,321
1934	2,131	−1,429	−3,560	1,257	− 874
1935	785	310	− 475	3,382	2,597

Fabricant, *Studies in Income and Wealth*, I, 152 Kuznets, e.l. II, 291; Fabricant, *Capital Consumption and Adjustment*, 160, 171, 249.

The differences which stem from the use of different concepts are substantial.[15] This can be judged from the difference between the inventories measured in real terms rather than in money terms, or when using "Last in, First out" (LIFO) instead of the usual "First in, First out" (FIFO) rule. The National Bureau of Economic Research figures for the period 1929-1935 give a good idea of the magnitudes involved.

The rise in the value of all business inventories (as distinguished from the value of their physical expansion) was recently estimated as going on at the rate of 6 billions a year, corporate inventories accounting

[14] For the better known income concepts: I. Fisher, *Nature of Capital and Interest* (New York, 1906), Chap. 7 and Appendix; H. C. Simons, *Personal Income Taxation* (Chicago, 1938), Chap. 2; P. H. Wueller, "Concepts of Taxable Income," *Pol. Sci. Quart.*, Vol. LIII (March, 1938), pp. 83-110 (Dec., 1938), pp. 577-83, and Vol. LIV (Dec., 1939), pp. 555-76.

[15] J. M. Keynes, *General Theory of Employment, Interest, and Money* (New York, 1936), pp. 51, 104.

for perhaps 4 to 5 billions.[16] It should be kept in mind that even during the last few years corporate profits were roughly equal to corporate depreciation and depletion; and that in bad times the latter are relatively much greater.[17]

III

Whether inclusion of expectations in general, or of certain types of expectations, in the formation of the income concept, does or does not increase or decrease "income" of any given type of definition cannot be stated in general terms. It depends on the degree of elasticity of expectations, which in turn may depend on the period of past performance which is used as a frame of reference for determining the elasticity of expectations. Fruitful analysis will require development of rather highly specialized ideal types of expectations (group characteristics II and III, Table I) and study of their behavior during the business cycle.[18] Attempts to generalize, that is, to develop relatively simple ideal types, will be more successful if we consider "price levels" and "interest rates" (Group IA and IB of Table I). In an economy with forceful monetary and banking management it cannot be assumed that every cyclical movement implies oscillation around a constant level with prices rising equally during the upswing and falling equally during the downswing. Our discussion will apply to several kinds of cycle, to the longer "business cycle" but equally to the inventory (or so-called short) cycle. Similar inventory changes and durable investment changes are present in all cases.

The analysis of different income concepts held by enterprisers and the influence on reinvestment must not and does not imply that cycles are caused by employing certain concepts. For example, inventory evaluation following the rule of "market or cost, whichever is lower," is not inherently causative[19] but merely reflects causal forces. In fact, such a theory must presuppose that, for reasons other than the influence of "false accounting," prices rise and, therefore, accounting might be misleading. As a contributing factor in the maldistribution of resources "misleading accounting" will be more important when prices rise sharply due to creation of additional purchasing power. It will, of

[16] *Machinery and Allied Products Institute Bulletin*, No. 1965 (Washington, Dec., 1946), p. 5.

[17] *Cf. Survey of Current Business*, February, 1946, pp. 7-8.

[18] A. G. Hart, *Anticipations, Uncertainty and Economic Planning* (Chicago, 1940). G. Tintner, "A Contribution to the Non-Static Theory of Choice," *Quart. Jour. Econ.*, Vol. LVI (Feb., 1942), p. 301.

[19] F. Schmidt, *Die Industrie Konjunktur—ein Rechenfehler* (Berlin, 1927). F. Schmidt finally concedes that it can be only a partial cause strengthening other causes. *Cf.* W. C. Mitchell, *Business Cycles* (New York, 1927), p. 476.

course, be of some importance in other cases also.[20] Reinvestment cycles (that is, cycles of gross investment due to the fact that original investment was bunched and thus greater demand for replacement comes up at certain intervals) are somewhat peculiar in that they do not tie in neatly with the other fluctuations and thus are not correlated with general economic changes. It is sufficient for our purpose to operate with the minimum assumption of forthcoming general price falls and price rises.

Rising prices will lead to increased investment (not only in monetary terms, but, due to the normal shape of expectations, also in real terms.) Falling prices will lead to decreased investment as profit expectations decrease. There seems to be some evidence that the cyclical amplitude is smaller on a rising price trend and greater on a falling price trend.[21] The relation between price changes and reinvestment is complex. Rising prices decrease the reinvestment necessary to keep capital or the income flow intact (using concepts A and B); measurement in real terms (concepts C and D) depend on the relation between the prices of capital goods and the prices of those goods used in the indices for defining real terms. In the upswing the rise in demand for investment goods, and thus the price rise, will be (on the whole) relatively greater, and to that extent the necessary reinvestment stream relatively lower.[22] The reinvestment stream will have to be higher, however, when real terms are substituted for monetary terms in the income concept.

In the traditional view, interest rates rise during expansion and fall during contraction, at least in the later stages of each phase. This is not necessarily the case in a modern economy with forceful monetary management. The only restriction observed in this analysis is assumption of forthcoming general rise and fall of interest rates. There is evidence (in the traditional as well as in the Keynesian world) that the willingness to save should rise with the interest rate.[23] Despite the fact that the interest rate as a cost factor does not seem to influence a specific investment very much,[24] it will do so for certain very long-

[20] E. Schiff, *Kapitalbildung und Kapitalaufzehrung im Konjunkturverlauf* (Vienna, 1933); A. Weber in *Economia Politica Contemporanea* (Essays in Honor of Supino [Padova, 1930]), Vol. I, p. 51.

[21] C. Warburton, "The Misplaced Emphasis in Contemporary Business—Fluctuation Theory," *Jour. of Business*, Vol. XIX, No. 4 (Oct., 1946), pp. 202-03; A. R. Burns and W. C. Mitchell, *Measuring Business Cycles* (New York, 1946), p. 433.

[22] An exception would be only sticky prices of monopoly-controlled or patent-controlled investment goods, where the necessary reinvestment stream would change not at all or very little.

[23] M. Timlin, *Keynesian Economics* (Toronto, 1942), p. 104; *cf.* J. M. Keynes, "Mr. Keynes's Consumption Function: Reply," *Quart. Jour. Econ.*, Vol. LII, No. 4 (Aug., 1938), p. 708.

[24] *Cf.* J. W. Meade and P. W. S. Andrews, "Summary of Replies to Questions on Effects of Interest Rates," *Oxford Economic Papers*, I (Oxford, 1938), pp. 14-31.

term investments as a capitalization factor.[25] On the other hand, the higher rate might discourage investment in so far as it encourages a shift away from labor-saving devices.[26] It must be conceded that the foregoing observation gives no consideration to expected obsolescence (technological changes) which might well be a more important factor than expected changes of interest rates,[27] although technological changes might in turn be related to interest rate change.

The impact of an interest rate change on reinvestment is complex; yet it might be fully as important as the impact on investment. A higher interest rate makes for earlier obsolescence and thus more replacement in order to keep capital intact (income concepts A and C); but a higher interest rate requires less replacement to keep the income stream intact (income concepts B and D). Also, when applying an annuity method, a higher interest rate requires a lower annual contribution for the necessary reinvestment.[28]

IV

What, then, is the probable influence of accounting devices which are proposed for adapting income determination to the aim of reflecting more truly "true" income? To the accountant, income is "the figure that results when the accountant has finished applying the procedure."[29] What and how to depreciate thereby depends on the income concept chosen. In other words, every depreciation method depends on the definition of income.[30] The primary consideration is historical cost if money capital is to be kept intact; reproduction cost if real capital is to be kept intact; historical cost if maintenance of capital is more important;

[25] F. Machlup, "The Rate of Interest as Costfactor and Capitalizationfactor," *Am. Econ. Rev.*, Vol. XXV, No. 3 (Sept., 1935), pp. 459-65. *Cf.* L. S. Shackle, "Interest Rates and the Pace of Investment," *Econ. Jour.*, Vol. LVI (Mar., 1946), p. 16.

[26] F. A. Hayek, *Profits, Interest, Investment* (London, 1939), Chap. I; for criticism *cf.* T. Wilson, "Capital Theory and the Trade Cycle," *Rev. Econ. Studies*, Vol. VII, No. 3 (June, 1940), pp. 173-79.

[27] M. Moonitz, "The Risk of Obsolescence and the Importance of the Rate of Interest," *Jour. Pol. Econ.*, Vol. LI, No. 4 (Aug., 1943), pp. 348-55.

[28] On the replacement problem, B. Caplan, "Reinvestment and Rate of Interest," *Am. Econ. Rev.*, Vol. XX, No. 3 (Sept., 1940), p. 507, and "The Premature Abandonment of Machinery," *Rev. Econ. Studies*, Vol. VII, No. 2 (Feb., 1940), pp. 113-22. Also J. R. Hicks, *Value and Capital* (Oxford, 1939), pp. 185-88, as to differences due to receipt streams of different length. No distinction between investment and replacement is brought out, *e.g.*, in L. Hurwicz's model, "Theory of the Firm and of Investment," *Econometrica*, Vol. XIV, No. 1 (April, 1946), p. 129, probably because of the highly formalized nature of these models.

[29] J. B. Canning, *op. cit.*, p. 98.

[30] G. A. D. Preinreich, "Annual Survey of Economic Theory: The Theory of Depreciation," *Econometrica*, Vol. 6, No. 2 (July, 1938), pp. 219, 237, expresses the thought by saying that every depreciation function ever devised depends on the profit function.

and reproduction cost if maintenance of the stream of earnings is more important.[31] The annuity method of depreciation accounting is the method most consistent with the concept of maintaining real or money capital intact. On the other hand, straight-line depreciation might do as well in larger enterprises due to the law of averages.[32]

Several methods have been proposed for evaluating inventories. Industrial production needs certain volumes of raw materials. If increases in evaluation of inventories are accepted as income, misinterpretation is invited in which a part of this fictitious income may be spent or taxed away leaving the business enterprise without a volume of raw materials large enough adequately to meet the new demand. "First in—First out" coupled with cost-or-market, whichever is lower, is the customary inventory accounting practice. This leads to differences in measuring income during upswing and downswing. If inventory profits were not considered income, then income in prosperity would appear to be relatively smaller. Devices such as the "Last in—First out" (LIFO) method, or the base-stock method, or an inventory-reserve method in evaluating inventories are suggested.[33] By leaving out of calculation the greater part of the change in the value of inventory, the business enterprise will show less income during the upswing and more during the downswing than by using the customary rules. Similar results will arise from a change in depreciation rules from a straight line to a useful service basis.[34] Such procedure increases depreciation allowances and thus decreases recorded income in times of prosperity. Conversely, such procedure decreases allowances and thus increases recorded income in times of depression. The same effects will be observed if depreciation policy permits the recovery of replacement cost instead of original cost. A similar result accrues to business permitted a changing rate of depreciation which recovers depreciation and obsolescence

[31] C. T. Devine, "Depreciation and Income Measurement," *The Accounting Review*, Vol. XIX, No. 1 (Jan., 1944), pp. 39-47.

[32] R. F. Fowler, *The Depreciation of Capital, Analytically Considered* (London, 1939).

[33] H. B. Arthur, "Inventory Profits in the Business Cycle," *Am. Econ. Rev.*, Vol. XXVIII, No. 1 (March, 1938), pp. 27-40; G. E. Putnam, "What Shall We Do about Depressions?," *Jour. of Bus.*, Vol. XI, No. 2 (April, 1938), p. 145; R. G. Walker, "The Base Stock Principle in Income Accounting," *Harvard Bus. Rev.*, Vol. XV, No. 1 (Autumn, 1936), pp. 76-94; National Association of Cost Accountants, *Year Book, 1936* (Peloubet, Perofsky, Walker), p. 161 ff.; G. E. Putnam, "The Role of Paper Profits in Industry," *Harvard Bus. Rev.*, Vol. IV, No. 2 (Jan., 1926), p. 127-37; a discussion with some numerical examples by C. T. Devine, *Inventory Valuation and Periodic Income* (New York, 1942), Chaps. 9 and 10.

[34] J. B. Canning, "A Certain Erratic Tendency," *Econometrica*, Vol. II, No. 1 (Jan., 1933), p. 52; about the postponement of depreciation in depression and its influence: J. Bain, "Depression Pricing and the Depreciation Function," *Quart. Jour. Econ.*, Vol. LI, No. 4 (Aug., 1937), p. 714.

charges from year to year by setting up flexible depreciation reserves.[35]

Generally speaking, profit forms an investment incentive, but if inventories are responsible for profits, recorded income will be larger, more profits will be distributed and partly consumed, and also to a greater extent taxed away. Thus less will be invested out of business earnings than otherwise. On the other hand, if inventory-holding shows no profit, there is seemingly no incentive for an increase in investment; but at the same time there will be less recorded profit to be distributed and, as far as taxation follows accounting, there will also be less taxation. Consequently, investment, including inventory holdings, will probably be higher than otherwise.

The picture thus given is simplified but does retain the essential features. Profit, though distributed, might be invested again. It might flow back in part into the enterprise through the security markets; but this would not alter the direction of change, though it might influence the amount of change. Assume, as was done in Part I above, that the intensity of willingness to reinvest is greater than the intensity of willingness to invest. Then any given amount consisting of a greater recorded income and a smaller amount available for reinvestment, will produce less gross investment than the same amount split up into a smaller amount of recorded income and a greater amount available for reinvestment.

Inventories, measured in physical units, increase in the upswing, and glut the market during the downswing. An accounting practice which induces an increase in unit inventories in the upswing is not desirable. A policy which does not make inventory losses visible during depression delays liquidation. Policy which alleviates the cycle must minimize the increase of inventories in the upswing. The question is: Which accounting method does so? Here conflicting considerations arise, and doubt beclouds determination of that method which brings about higher liquidity. Perhaps the entrepreneurial practice of maintaining a relatively constant relation between sales volume and inventory size should be modified, as such practice almost automatically increases inventories if business picks up.

Of course, not all income is invested or consumed; nor are all funds available for maintenance of capital actually used for replacement. One can assume on general consideration that the willingness to keep distributed income liquid will be greater than the willingness to keep retained income liquid; and again, the willingness to keep retained income liquid will be greater than the willingness to keep funds for capital replacement liquid. Changing liquidity will, under these circumstances, not reverse the direction of change though it might influence

[35] *Cf.* L. H. Kimmel, *Depreciation Policy and Postwar Expansion* (Washington, 1946), pp. 44-60.

the amount of change. At any rate, it seems that increased distribution of profits during the upswing will cause a decrease in investment and thus in holding of inventory. If all other equipment is still evaluated at pre-boom cost, the customary rule of "First in—First out" for inventories will show greater profits for investment in raw materials or finished goods, which are easier to liquidate and, thus, on the whole are preferable as compared with investment in very durable investment goods. To acknowledge in this manner the importance of inventories during the cycles does not mean that an increase or decrease of inventories is the main lever in expansion and contraction, nor that the inventory size is influenced by the interest rate; but some importance can not be denied to inventories.[36]

Another proposal made along similar lines is more far reaching than changing inventory-evaluation rules. It is stabilizing the accounting unit in the accounting system in order to arrive at "true" income.[37] Capital is measured in some real terms for which Sweeney proposes the use of an index of living cost but for which he accepts the wholesale price index, because it is more readily available at shorter intervals. For arriving at income, Sweeney uses a distinction between changes in capital arising out of changes in the index, and income or loss proper. Some technical difficulties are obvious. One might easily prefer reproduction cost or reproduction cost indices as a basis for measuring capital. The reproduction costs of the individual enterprise, or of one group of enterprises, differ from one another. The wholesale index is hardly appropriate for all factors of production. Still, a consideration of the basic principles involved is most important.

What are the consequences of "stabilized" accounting in regard to investment and reinvestment? The "stabilized" income statement shows that certain sums are changes in capital but not income. This does not say that such a change in capital due to increased prices is to be kept in cash. The same amount might be spent, of course, if not as investment, as reinvestment. Perhaps new lines of business might not be started; but more inventories and costlier machinery might be bought. Stabilized accounting means a greater total investment under increasing prices, as less will be distributed in payments to security holders. In the downward phase of the cycle, the rule of cost or market, whichever is lower, so far as applied to inventories, will restrict distribution in a similar way.

[36] *Cf.* R. G. Hawtrey, *Trade and Credit* (New York, 1928). L. H. Metzler, "Business Cycles and the Modern Theory of Employment," *Am. Econ. Rev.*, Vol. XXXVI, No. 3 (June, 1946), p. 282.

[37] H. W. Sweeney, *Stabilized Accounting* (New York, 1936), p. 43; the whole idea goes back to German proposals expounded mostly during the German postwar inflation; *cf.* E. Schmalenbach, *Die Dynamische Bilanz* (Leipzig, 1926) and F. Schmidt, *Die Industrie Konjunktur—ein Rechenfehler* (Berlin, 1927).

Stabilized accounting will separate capital revaluation and thus show a more comfortable "income" figure. What really matters is, of course, not the accountant's distinction between "true" income and increase and decrease in capital assets, but the investment decision which is not necessarily touched by renaming the items. Stabilized accounting will decrease investment on the upswing if the profit expectations are measured in these terms, *i.e.*, if cost and revenue are measured in real terms. This is, then, hardly the merit of the accounting procedure; if an investor calculates profit and loss in money terms, *e.g.*, because his obligations are money debts, he might continue to invest in the same manner as before.

The same critical considerations can be applied with even more force if "Last in—First out" inventory evaluation is accepted for income tax accounting. It is evident that what might be a sound tax base is not always the best base for the investment decision or for distribution amongst partners. There are no purely fiscal taxes which do not produce changes in income and thus in prices and quantities produced. Acceptance of any income concept for tax purposes is a policy decision; this is so in other than such obvious cases as Fisher's income concept, which implies a policy decision in favor of investment, as far as taxation is concerned.[38] Taxes might depress the willingness to reinvest though their main impact will be on the willingness to invest.[39]

Even if we approve of the "Last-in—First-out" method, base-stock method, inventory-reserve method, or other devices to deflate inventory values during the upswing as more appropriate guidance for the inventory investment decision, that does not necessarily mean that it does justify their application for tax purposes. To permit businesses, if they adopt "Last-in—First-out," to use this rule also for arriving at the tax base, as incorporated in Section 22d, Internal Revenue Code,[40] means less taxes during the upswing as prices rise and more taxes during the downswing as prices fall. Such a policy is just the opposite of any tax policy aiming at alleviating the business cycle. Moreover, less taxes accrue to the Treasury if the tax rates in the period of price rise are higher than at the time of price fall (*e.g.*, for the price rise during the war). The same applies if prices generally rise more during prosperity than they fall during depression (*e.g.*, due to long-run expansionist monetary policy). Thus such policy means for the last decade, as well

[38] I. Fisher, "Income in Theory and Income Taxation in Practice," *Econometrica*, Vol. 5, No. 1 (Jan., 1937), pp. 1, 54.

[39] J. W. Angell, *Investment and Business Cycles* (New York, 1941), p. 299.

[40] On the technicalities: R. W. King, "Effect of Inventory Valuation Methods on Profits," *The Accounting Rev.*, Vol. 22, No. 1 (Jan., 1947), pp. 45-53; Tannenbaum, "The 'Lifo' Method," *Taxes* (June, 1947), pp. 492-98.

as for the next (making a probable assumption in regard to monetary policy), less direct taxes or higher tax rates.

In order to decrease overinvestment in the upswing it might be good policy to have businessmen consider "fictitious" inventory gains as income, distribute them, and have such gains taxed, the further to decrease investment. In depression, it might be advisable to let businessmen disregard unrealized inventory losses, perhaps even realized ones, in order to permit better apparent profit expectations. At the same time, it might be good policy to decrease taxation even after admitting such losses in arriving at the tax base.[41]

Attempts to correct the influence of changes in the value of money on accounting, even if desirable in themselves, will, if applied to taxation, be rather undesirable in their effects, compared with "First in—First out" coupled with cost or market, whichever is lower. This conventional rule for inventory evaluation keeps the tax yield in prosperity higher than would be the case when using inventory evaluation arrived at by any method approaching measurement in real terms. If the total tax yield in the full cycle period is to be kept at a certain amount, higher tax yield in prosperity means necessarily lower taxes in depression. Thus the "First in—First out" method of evaluation seems to be preferable from the point of view of anti-cyclical tax policy.[42]

In conclusion we can say: The reinvestment stream is equally important with the investment stream, if not more important; both streams do not change necessarily or even regularly in the same direction. Directions and magnitudes involved depend to a high degree on the dividing line drawn by the businessmen between reinvestment and investment, which in turn depends on the income concept used. Directions and magnitudes will vary according to the characteristics of the income concepts applied. The influence of the difference in concepts, *i.e.*, of the base for reinvestment or investment, is probably more important than changes in the rates themselves.

The cyclical effects of accounting methods depend largely on the price and interest changes in their relation to the cycle. The accounting method chosen or income concept used by the businessman is significant, at least in so far as recorded profits and losses influence the investment decision. Income taxation which permits "Last-in—First-out" inventory evaluation decreases taxes in prosperity and increases them in depression, and aggravates cyclical disturbances.

[41] *Cf.* A. Hansen, *Business Cycles and Fiscal Policy* (New York, 1941); H. C. Simons, *Personal Income Taxation* (Chicago, 1938); H. W. Groves, *Production, Jobs, and Taxes* (New York, 1944); for recent tax discussion: see Kimmel, *op. cit.*, p. 44-60 and *Panel Discussion: Capital Gains Taxation* (New York, Tax Institute, 1946).

[42] S. P. Dobrowolsky's note on "The Effect of Replacement Investment on National Income and Employment," *Jour. Pol. Econ.*, Vol. LV, No. 4 (Aug., 1947), pp. 352-58, appeared after this manuscript had been submitted and is not considered in the text.

PROFESSOR TARSHIS AND THE STATE OF ECONOMICS

By KENNETH E. BOULDING*

The appearance of Professor Tarshis's *Elements of Economics*[1] represents in a sense a culmination of a highly significant change in what might be called "received doctrine" in economics which has been going on during the past twenty years. To my knowledge, this is the first time that full-blooded Keynesian doctrine has appeared in a popular, non-specialized text intended for elementary students. The appearance of this work gives Keynesianism its accolade of orthodoxy. There is no doubt that the book will be widely used. It is excellently written, lucid in exposition, ingenious in argument, and the student who masters it will obtain a pretty clear view of the kind of economics which is dominant today in both academic and governmental circles. For this reason it is perhaps all the more important to examine what kind of economics it is. The purpose of this review, therefore, is not so much to criticise the book itself, nor to evaluate its utility as an elementary text, but rather to examine the type of analysis which it represents.

The two pillars which sustain the whole argument are Part Two, which is entitled *The Operations of Business Firms: Price and Output*, and Part Four, entitled *The National Income and Employment*. In Part Two the reader is taken through a long and ingenious exposition of the marginal analysis and the pricing process in various states of the market. In Part Four we have the Keynesian theory of output, prices and employment, clearly expounded and practically undiluted. There is a constant and most praiseworthy attempt to tie these two parts together and to show how general movements of output or prices and particular movements are related. All too often in the exposition of economics the student finds one world of discourse in the theory of the firm and industry and a totally different and apparently unrelated world of discourse in the theory of general prices and outputs. Nevertheless, Professor Tarshis's attempt to bring the two worlds together is less successful than one could wish, though the fault lies not so much with the exposition as with the present state of theory.

The marginal analysis has been under considerable fire recently[2]

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[1] Lorie Tarshis, *The Elements of Economics* (Boston, Houghton Mifflin Co., 1947).

[2] See R. A. Lester, "Shortcomings of Marginal Analysis for Wage-Employment Problems," *Am. Econ. Rev.*, Vol. XXXVI, No. 1 (Mar., 1946), p. 63; Fritz Machlup, "Marginal Analysis and Empirical Research," *Am. Econ. Rev.*, Vol. XXXVI, No. 4, Pt. 1 (Sept.,

and there is a fairly widespread feeling that the existing theory of the firm is inadequate to serve as a foundation for a "general theory." Many of the criticisms have been based on misunderstandings. The criticism that the marginal analysis takes no account of discontinuities has some force, but is not fundamental, as it is easy to modify the analysis to meet it. Sweezy's theory of the "kinked" demand curve is included by Tarshis as an essential element of the analysis, and other discontinuities, *e.g.*, in cost or production functions, could easily have been introduced.

The criticism that the marginal analysis assumes an unrealistic principle of profit maximization has somewhat more sting. Nevertheless, it confuses a particular application of the analysis with the method itself. The marginal analysis consists essentially of two parts: the first is the definition of a system of functional relationships among a number of variables, *e.g.*, prices, outputs, inputs, constituting the economic parameters of a "unit of choice"; the second is the application of some "principle of maximization," or more generally, a principle of selection, to this complex of functional relationships in order to obtain some "ideal" system of values for the various variables—ideal, of course in relation to the principle of maximization or selection applied. The principle of maximizing the "net revenue" is merely a very simple first-approximation "model," and is a special case of a much more general method of analysis; it is quite easy to apply other definitions of what is to be maximized or some other principle of selection to the same set of functional relationships. Professor Tarshis shows very ingeniously in Chapter 17 that the "rule of thumb" method of pricing according the cost-plus principle may, under certain assumptions, give the same results as the profit-maximization principle. It is not necessary, however, to resort to such a demonstration in order to justify the *method* of analysis, which is that of applying some criterion of selection to a complex of functionally related variables.

Two questions do arise, however, in regard to the theory of the firm (or household) as we now have it. First, do the assumed variables and the functions which relate them constitute a reasonably realistic model? Second, is the criterion of selection itself reasonably realistic? On both these grounds present-day analysis may be justly criticised. In the first place, the system of variables which it sets up are all "income" variables. The "firm" of the current marginal analysis is a curious bloodless creature without any very definite assets, without a balance sheet, without a debt structure, without liquidity or other asset preferences.

1946), p. 519; G. J. Stigler, "Professor Lester and the Marginalists," *Am. Econ. Rev.*, Vol. XXXVII, No. 1 (Mar., 1947), p. 154; F. H. Blum, "Marginalism and Economic Policy," *Am. Econ. Rev.*, Vol. XXXVII, No. 4 (Sept., 1947), p. 645.

In this respect the state of current theory is curiously inconsistent: in the theory of the firm, the student is most unlikely to meet the concept of the balance sheet, and works entirely within the narrow framework of income and cost concepts. In the discussion of the banking system, however, the behaviour of the individual bank is usually discussed—and Professor Tarshis does it extremely well—in terms of the dynamic changes in its balance sheet. The concepts of cost and revenue are nowhere encountered in the study of banking; the concepts of assets, debts, liquidity preference, etc., are completely absent from the discussion of the firm.

There is clearly need for an integration of the theory of the firm with the theory of the bank—the two institutions are, after all, merely special cases of a general form. This gap in theory manifests itself strikingly in the macroeconomic analysis. There the student is confronted with a theory which involves such concepts as the rate of interest and the marginal efficiency of capital which clearly are supposed to apply to individual firms, and yet which he has not encountered once in the section devoted to the theory of the firm.

Closely related to the unrealistic nature of the limitation to income-variables is the unrealistic assumption of the maximization of net revenue, based on the further assumption that the net revenue is a measure of profitability. Even assuming away for the moment the difficulties involved in the definition of net revenue, it is quite clear that the usual assumption involves a serious neglect of the relationship of the income structure to the capital structure of the firm. A firm is not interested in maximizing net revenue without regard to the effects of such maximization on its capital-debt-liquidity structure. To give but a single example, current theory has resulted in an almost complete failure to perceive that liquidity (or other asset) preferences may be as important an element in explaining the demands for input or the supplies of output from a producer as it is in explaining the behaviour of a bank. This is not so much a criticism of Professor Tarshis as of the present state of theory—we cannot blame the writer of a textbook for not expounding a theory which does not yet exist. Yet the very clarity of Professor Tarshis's account of current theory reveals all the more startlingly its inadequacies.

Before turning to the discussion of "macroeconomics," there is one curious and perhaps significant omission in Professor Tarshis's analysis of the firm which should be mentioned. There is no discussion whatever of the production function or of its relation to the cost structure. The time-honored "law of diminishing returns" is nowhere mentioned. It can hardly be that it was thought too difficult for the elementary student. There are many things in the book much more difficult. It must

be that, to a generation trained on Keynes, the theory of production —in the narrow sense of the production functions—is not important, or at least is so obvious as to need no discussion. One cannot help feeling that there is something a little ominous in this omission. It may be true, as Sherlock Holmes remarks, that the mind cannot hold everything, but it would be a pity if the interest and enthusiasm which the theory of employment has aroused should cause the problem of productivity to drop out of sight.

Related somewhat to this neglect of productivity analysis is the neglect, also, of the theory of "long-run" progress, a neglect which occasionally seems to lead the author seriously astray, as in his discussion of agriculture, where he misses entirely the long-run reasons for agriculture's relative unprofitability in the changing occupational structure of a progressive society. Indeed, the work might almost have been entitled "The Economics of the Short Run." While the short run is extremely important, it would be a pity to let our correction of the pre-Keynesian neglect of short-run problems lead us into the opposite error of neglecting the long run.

Corresponding to the omission of production functions there is also a complete lack of reference to utility or indifference functions: the law of diminishing marginal utility (even in its face-lifted form as diminishing marginal rate of substitution) knows no place in the Tarshis scheme. Demand curves, like cost curves, are the ultimate limits of analysis beyond which he will no go. For many teachers, this will constitute a serious defect of the work, and it is to be hoped that in a later edition the author will rectify the omission. In a text that was mainly institutional the omission might be justified, but in an essentially analytical work it is difficult to see why the analysis should not be pushed to the accepted frontiers of the discipline. We cannot quite hand over to the psychologist at the demand curve, nor to the engineer at the cost curve, and unless production and indifference functions are introduced, it will be difficult for the student to get a picture of the "natural"—or perhaps conventional—boundaries of economics.

The treatment of the theory of national income and employment in Part Four is a clear and accurate statement of a widely held version of the Keynesian analysis. Nevertheless, one cannot help feeling here, also, that for all the brilliance of its accomplishments there are certain weaknesses and confusions in the Keynesian system which may not affect the broad outlines or the general conclusions of the analysis, but which, nevertheless, constitute serious analytical defects. These defects arise mainly from a confusion which Keynes originated and which has been perpetuated in his followers between two related but essentially different processes in economic life: the process of monetary payments

and circulation, on the one hand, and the processes of production, consumption, and accumulation, on the other.

The confusion arises because of Keynes's identification of consumers expenditure with consumption, and of business expenditure for capital goods with investment. For many purposes this identification of the two different concepts does not cause any trouble: it is, however, an analytical weakness and at some points is likely to lead to seriously false conclusions. It leads to a confusion of the concept of "income" (value of output) with the quite different (though related) concepts of "money receipts," and a similar confusion of the "absorption" concept, whether as consumption or as planned accumulation, with the concept of "spending." As a result of this, there is a tendency to identify, perhaps subconsciously, the national income or the gross national product in value terms with their equivalents in real terms, and to underestimate the significance of the problem of the price level.

If the pre-Keynesians fell into the error of assuming that quantity fluctuations could be neglected in the explanation of price changes, the Keynesians are seriously liable to the opposite error of assuming that price changes can be neglected in explaining quantity changes. Although Dr. Tarshis is clearly aware of this problem himself, one wonders whether the student will become aware of it, and one wonders also whether even Dr. Tarshis himself is sufficiently aware of the difficulties involved—in particular, the problems raised by the fact that sharp rises in the price-wage level can evidently take place long before full employment is reached. Keynes himself saw this problem in his famous discussion of "bottlenecks": it would be a pity if in the enthusiasm for the optimism which a neglect of this problem can engender, it came to be overlooked.

The effects of the confusion mentioned above can be seen very clearly in the discussion of the savings-investment identity and the determination of national income. There are at least three quite different economic identities which are hidden under the usual discussion of savings and investment. There is the identity which I have elsewhere called, perhaps too facetiously, the "bathtub theorem," that physical accumulation in any period must be equal to physical production less physical consumption. This identity has nothing to do with the monetary processes—nothing to do, for instance, with "spending," and yet it is perhaps the most fundamental form of the savings-investment identity. It can be expressed in value terms, and in this form yields the second identity, value of accumulation (investment) equals income (value of output) minus outgo (value of consumption). In this "financial" form, however, it must be treated with care, for if we identify investment with the increase in the *value* of total assets, the identity

only holds true if we include in our definition of income the rise in the value of existing assets due to a rise in their price.

The distinction is not made clearly enough, in the usual Keynesian analysis, between the physical and the financial forms of the true "savings-investment" identity. A much worse confusion, however, arises when the savings-identity, as defined above, is confused with an identity which may be called the balance-of-payments identity. This states that in a closed society, in the absence of creation or destruction of money, the total of all balances of payments must be zero, or, putting the same thing in another way, that the total of positive balances must be arithmetically equal to the total of negative balances. In more general form, we may say that the algebraic sum of all positive and negative balances of payments is equal to the net increase in the stock of money. For any individual, the balance of payments is defined as money receipts less money expenditures or outgoes. For an individual, therefore, money receipts less money expenditures is equal to the increase in his money stock. Summing the receipts and expenditures of any group, the identity remains that total money receipts less total money expenditures is equal to the increase in the money stock. If the money stock is constant, total receipts and total expenditures will be identical.

One very important contribution of the Keynesians has been the clarification of this point—in particular, by the proposition that "hoarding"—the decision of an individual to keep expenditures below receipts —does not directly increase the total quantity of money but operates directly to reduce the total of payments, whether receipts or expenditures. There is danger, however, of confusing the decision to hoard with the decision to save, which is something quite different: hoarding is the decision to increase one's stock of money (liquid assets) by spending less than one receives. Saving is the decision to increase one's *total* assets by consuming less than one produces. The difference between these concepts can clearly be seen when it is observed that an individual can hoard (increase his money stocks) and dis-save (decrease his total assets) at the same time.

Another example of the confusion between the production-consumption and the receipts-expenditure processes is to be found in the concept of the multiplier. There are at least two quite distinct meanings which can be assigned to this concept. In the first place, it can be defined as the increase in the gross national product which will result from a unit increase in physical investment (accumulation) on the assumption that the "consumption function" which relates consumption to gross national product is given. In the elementary formulations, the further assumption is frequently made that the consumption function is linear, but this is not strictly necessary for the validity of the concept. In these

terms, the multiplier can be defined in physical indices which have nothing directly to do with the flow of money. Whether the multiplier in this sense is a useful analytical concept depends, of course, on the assumed stability of the consumption-output function and on the assumed absence of any stable investment-output function. Over short periods these conditions may be approximately true, and Tarshis is careful to point out that during periods like the war years the instability of the consumption function makes multiplier analysis inapplicable. His confidence that the postwar years will see a return to the stable prewar consumption function is not altogether shared by this reviewer, but history alone will tell.

The multiplier in this sense, which we may perhaps christen the income-multiplier, may also be expressed in financial (dollar) as well as in physical terms, though here again we have to be careful about whether income includes the rise in the value of existing goods due to a price rise. It is particularly dangerous to assume here that price changes can be neglected.

The marginal propensity to consume may also have a financial as well as a physical form. In the physical sense, it may be defined as the increase in an index of physical consumption which follows from a unit increase in physical output (real income). Or it can be defined in dollar terms as the increase in the money value of goods consumed which follows from a unit increase in money income. As with the other financial concepts, we may have to distinguish between changes in money income which result from changes in the price of existing goods and those which result from changes in the volume of physical output. The relationship between income (output), investment, and consumption, and between the multiplier and the propensity to consume can be expressed by familiar formulæ: if Y is income, I is investment, C is consumption, we have $Y = I + C$; if there is a stable consumption function $C = C(Y)$, we have also $dY = dI + C'(Y)dY$, whence $\frac{dY}{dI} = \frac{1}{1 - C'(Y)}$. The income-multiplier is $\frac{dY}{dI}$: the propensity to consume is $C'(Y)$.

It should be observed that this equation holds most simply for the physical expression of these variables, and hence the multiplier and the propensity-to-consume relationships in this sense have nothing to do with "spending": the relationship could have meaning even in a completely non-monetary society. In its financial form, likewise, the equation has nothing directly to do with the "spending" process—all the variables are money values of physical quantities and are not money flows or "payments." It should be observed that in its financial form

the relationship between the propensity to consume and the multiplier may be more complex than the above equation indicates, because of the fact that people may regard capital gains as income.

In addition to, and quite distinct from the above set of concepts and relationships, there is a set of concepts and relationships in regard to the payments system, *i.e.*, the system of monetary circulation. Suppose that we can regard expenditures as consisting of two parts: spontaneous expenditures (I) which are not a function of receipts (Y) and induced expenditures (C) which are a function of receipts ($C = C(Y)$). In the absence of changes in the money stock we have seen that total receipts equals total expenditures, *i.e.*, $Y = I + C$. From this we also obtain an equation $\frac{dY}{dI} = \frac{1}{1 - C'(Y)}$. The meaning of the concepts is, however, different from that of the previous equation, even though the symbols are the same. The expression $\frac{dY}{dI}$ is now the "payments multiplier," *i.e.*, the increase in total payments which is the result of a unit increase in "spontaneous" expenditure. The expression $C'(Y)$ is now the "propensity to spend," *i.e.*, the increase in induced expenditure which results from a unit increase in receipts.

The identification by Keynes (and by Tarshis)[3] of consumption with consumption expenditure and of investment with expenditure for investment goods leads to a most unfortunate confusion of these two different sets of concepts and processes. It is all the more unfortunate because while the multiplier concept makes a good deal of sense in the physical production-consumption process and in the theory of employment, it does not make very much sense in the theory of payments and monetary circulation. It is extremely doubtful whether the distinction between "induced" and "spontaneous" changes in expenditure, which we have had to make in order to make any sense of the payments multiplier, is in fact a very useful analytical distinction, and it certainly gives the student a much less clear view of the payments process than the older velocity of circulation or even the "real balances" approach.

It is even more doubtful whether the distinction between "spontaneous" and "induced" expenditures corresponds at all closely to the distinction between "expenditure for investment" and "expenditure for consumption," or to the distinction between "business expenditure" and "household expenditure." Thus the "income multiplier," which is the really significant concept, is by no means clearly related to any "pay-

[3] The same confusion also vitiates the otherwise excellent "Income and Employment" by Theodore Morgan (New York, Prentice-Hall, 1947).

ments multiplier," and an exposition of the multiplier analysis in terms of "spending" is likely to run into serious errors.

Just how serious are the errors introduced into the conclusions of the Keynesian analysis by the above-mentioned defects? Because of the fact that while the Keynesians are ostensibly talking about a "payments" multiplier, they are in fact talking about the really significant "income" multiplier, the analytical defect has had much less serious consequences than might at first sight be supposed. Nevertheless, in one or two cases the defect seems to have led to serious errors in conclusions. The failure to distinguish between consumption and consumers' (or household) expenditure has led to a corresponding failure to realize that consumption—in the proper sense of gross subtractions from the capital stock—is a function not merely of gross additions to that stock (income) but is also a function of the size of the capital stock itself. It is a capital that is consumed: hence, the more capital of given durabilities, the more consumption. Thus while the growth of capital, it is true, diminishes the incentives to accumulate further capital, at the same time it increases consumption simply because there is more capital to be consumed. Indeed, it can be argued with some force that a large part of consumption is not related to income at all, but is a function of the nature and extent of the capital stock. This is particularly true of that part of the consumption of goods which is independent of the degree of utilization, *e.g.*, the corruption of moth and rust.

It is clear that when the proper concept of consumption is employed, the specter of the Keynesian "Day of Judgment" or of "secular stagnation" becomes somewhat less terrifying. If the capital stock increases enough, its rate of consumption will be great enough to give us full employment even without any further accumulation. There is no guarantee, of course, that the growth of consumption will just balance the decline in accumulation in the "tapering off" period of a growing capital stock, and there may be a perfectly real "secular stagnation" problem. But there is an important offset to declining accumulation which has been overlooked because of an inadequate consumption concept.

Perhaps the most serious result of the confusions regarding the consumption-income-capital complex of concepts which characterize what might be called the "income school," has been the use of consumption as a measure of economic welfare. This is an error of great respectability in economics; it goes at least back to Adam Smith, and is the foundation of the self-contradictory income theory of Marshall and Pigou.[4] In spite of its age and respectability, however, the view that

[4] Note especially Pigou's little book *Income* (London, Macmillan, 1946).

consumption is to be identified with economic welfare or "real income" seems to me to be wholly fallacious. Consumption is only useful as an index of welfare if the durability of goods is a constant factor. It is not the *consumption* of goods but their *utilization* which for the most part gives us satisfaction. The confusion between consumption and utilization seems to have arisen because of the employment of "one-use goods," such as food, as illustrations. For the great mass of goods, however—houses, clothing, furniture, automobiles, etc.—it is evident that their consumption is merely a regrettable incident attendant upon their use, and that if we had indestructible houses, furniture, clothing, china, etc., we would be much better off.

The processes of production and consumption to which we give the name of "income" are, therefore, mere incidents in the *maintenance* of the stock of goods from which we derive our satisfactions: the satisfactions are derived from the *stock,* not from the production or consumption of the stock. This is true even of one-use goods: it is clear, for instance, that any economy in the consumption of coal is an advantage just as an economy in the consumption of houses is an advantage. Thus, consumption is not something to be encouraged and desired: rather is it something to be avoided and diminished. The less consumption necessary for the maintenance of a given stock of goods, the better off we are. It follows, likewise, that production is also a deplorable necessity imposed on us by the lack of durability of our stock of goods and by our desire to increase this stock.

These considerations are not perhaps of great importance in the short run when the structure of durability may be regarded as approximately constant. Thus the decline in output during the 'thirties represents a real loss, and was not a sign of the removal of the curse of Adam. Nevertheless, over long periods the relation of production and consumption to the total stock cannot be neglected, and we shall greatly misinterpret the welfare significance of a statistical rise in output and consumption if that output is of less durable goods. One would not expect Dr. Tarshis, preoccupied as he is with the economics of the short run, to deal with this problem, yet one wonders whether it is not something that the elementary student should encounter. One catches a hint of it in Dr. Tarshis's obvious reluctance to define national income in "net" terms: it is the gross national product which is always the most significant figure for him, as it should be for one whose main object is to expound the theory of employment.

By avoiding the concept of a net product he avoids a whole morass of absurdities into which some of the other "income approach" writers have fallen. The "net" national product is usually defined as the gross product less "depreciation"—depreciation being usually confined to

plant and machinery. But depreciation is merely one form of consumption: and if we subtract one part of consumption (depreciation of industrial fixed capital), why not subtract depreciation of consumers capital, of houses, automobiles, etc.? And is there any logical difference between consumption which is spread out over a life-period of a commodity (depreciation) and the consumption of one-use goods such as fuel and foodstuffs? It would seem, therefore, that any attempt to define a net product by subtracting "depreciation" from a gross product will land us logically in a definition which makes the net product equal to the gross product less all consumption—which is to make the net product equal to accumulation, in which case a stationary society, however rich, would have no net product! By concentrating his attention on the gross product, Dr. Tarshis has avoided some of these pitfalls, but only at the cost of not discussing at all many of the most significant problems of welfare.

It seems evident that the Keynesian Revolution, while it has achieved respectability, is still very far from complete. The analytical defects of the system have not been eradicated. Keynes, like Adam Smith, was a fertile rather than logical writer. It may well be that we await a Keynesian Ricardo who will build upon the Keynesian foundations a truly logical and self-subsistent theory.

PROGRESSIVE TAXATION AND PROPORTIONATE SACRIFICE

By GABRIEL A. D. PREINREICH*

During the 1947 Congressional attempts to reduce personal income taxes, a number of conflicting opinions were expressed on how the reduction should be graduated in the various income brackets. The National Association of Manufacturers was in favor of a flat 30 per cent reduction throughout, but Congress finally compromised on a 30 per cent cut at the bottom, decreasing toward 10.5 per cent at the top. President Truman vetoed the latter plan twice as unsound and unfair, while labor leaders, more explicit, demanded a reduction in proportion to the income left after taxes. That would have meant cutting the lowest rate from 19 per cent to 13 per cent and the highest rate from 86.45 per cent to 85.45 per cent. There can be little doubt that all contestants and witnesses appearing before the Congressional committees would have strongly resented any suggestion that they might be unwilling to shoulder their fair share of the tax burden, but it is apparent that their respective ideas of what would be fair differed widely.

A survey of progressive income taxation in the United States fails to disclose what the official standard of fairness is.[1] Surtax rates were originally fixed arbitrarily on a basis of linear increase, ended in each instance by a few transitional rates converging toward an equally arbitrary maximal rate. A good example is the 1918 act which begins with a surtax rate of 1 per cent on the sixth $1,000 of taxable income and rises from there by 1 per cent for each additional $2,000 bracket up to 48 per cent for the last such bracket attaining $100,000. There followed five transitional brackets graduating surtax rates up to 65 per cent for incomes in excess of $1,000,000. Adding 6 per cent normal tax on the first $4,000 and 12 per cent on the remainder brought the limit to 77 per cent. In subsequent years, the rates so established were tinkered with upward or downward, in the manner recently witnessed in connection with the abortive 1947 bill.

Figure 1 shows a selection of the average tax rates on the entire net income of a married couple without dependents, during the two economic periods more or less affected by war. For better distinction, the

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[1] See Roy Blough, "Economic Research and Tax Policy," *Am. Econ. Rev., Suppl.*, Pt. 2 (June, 1944), pp. 1-26.

tax rates of the first such period are shown by broken lines and those of the second period by solid lines.[2] To what extent these widely different sets of rates are fair and equitable, can be judged only by reference to some acceptable definition of that phrase.

Beginning with Bernoulli, this problem has fascinated many great minds for almost three hundred years. Its voluminous literature describes a number of theories, some of which are concretely formulated

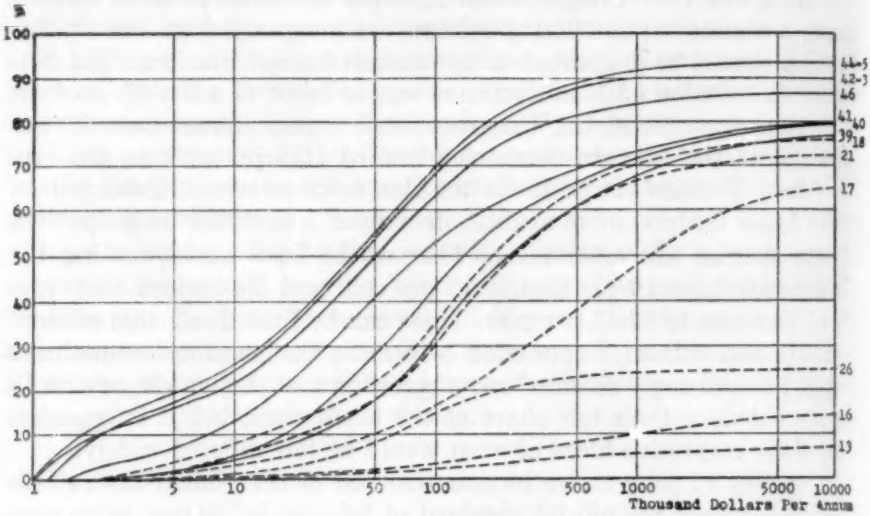

FIGURE 1

oversimplifications, while others amount to little more than a list of complexities overlooked in the former.[3] One of the oversimplifications having considerable basic merit is the theory of proportionate sacrifice. It is simple and definite enough to be readily understood by the average taxpayer who, after all, can assimilate economic theories only in the form of rules of thumb. For purposes of this paper, it is proposed to accept that theory as a standard, by reference to which income taxation in the United States shall be examined.

The theory of proportionate sacrifice is based upon the familiar marginal analysis underlying demand functions. Let us suppose that, in Figure 2, the ordinates of curve *f* measure the personal satisfactions,

[2] With respect to war and victory taxes, it was assumed that the wife has $500 income of her own. The rates for 1942-43 do not include the additional taxes arising from the so-called forgiveness, the effect of which may be visualized by adding 12.5 per cent of the 1942-43 taxes to the 1944-45 taxes. Assuming that the couple's income remained constant during 1942-45, this would bring the limit of the latter rates to 105.625 per cent.

[3] For an introduction and the assumptions underlying all sacrifice theories see Elmer B. Fagan, "Recent and Contemporary Theories of Progressive Taxation," *Jour. Pol. Econ.* (August, 1938), pp. 457-98.

in exchange for which taxpayers with successively higher incomes (measured horizontally on a logarithmic scale) are willing to part with their marginal dollars of income. The horizontal scale starts, not at zero income, but at the tax-exempt minimum standard of living denoted here by m. At that point, the measure of satisfaction demanded of the marginal dollar may be denoted by 100 per cent. From here on, gradu-

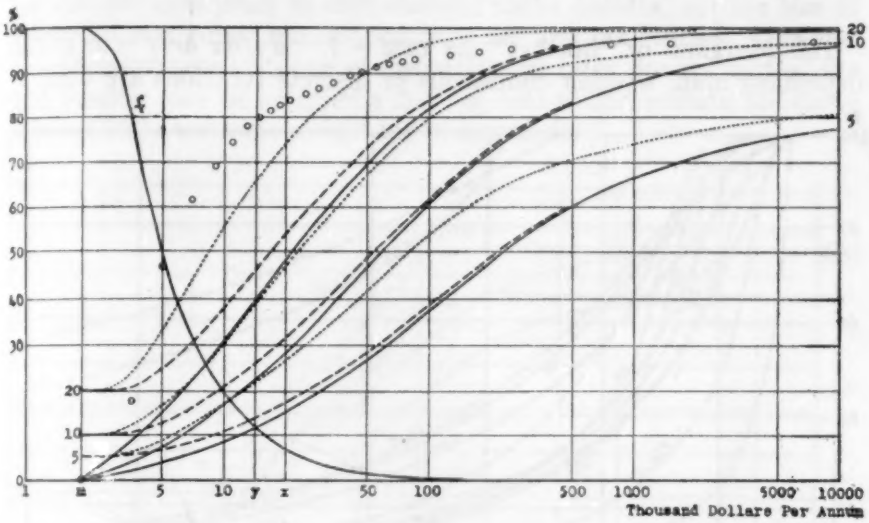

FIGURE 2

ally lower measures of satisfaction will suffice to induce the taxpayer to part with successive additional dollars.

Now, if the income of any given taxpayer be x, the area enclosed between the vertical lines m and x, and below curve f, will measure the surplus available for taxation. Regardless of where x may be located, the tax should take away the same proportion of each taxpayer's surplus. If 10 per cent be the proportion which yields sufficient revenue, the tax levied shall push the vertical line x back into such a position y (representing the income after taxes) that the area enclosed between the ordinates x and y, and below curve f shall equal 10 per cent of the total area.[4] The rate of tax accomplishing this proportionalization of the burden is, therefore, that rate which the area of the whole strip between x and y, up to the top of the scale, bears to the large rectangle between m and x. The mathematical expressions are:

I. Average effective tax rate on income before exemption $= \dfrac{x - y}{x} = 1 - \dfrac{y}{x}$;

[4] The logarithmic scale makes the strip $x - y$ look much narrower than it is.

II. Average effective tax rate on income after exemption $= \dfrac{x-y}{x-m} = 1 - \dfrac{y-m}{x-m}$;

The separate tax rates applicable to each successive dollar of income equal the rate of increase of the amount $x - y$ of the tax with respect to the increasing income x, *viz.*:

III. Marginal or "bracket" tax rate $= 1 - dy/dx$ *or* $1 - \Delta y/\Delta x$, depending upon whether continuous or discrete functions are used.

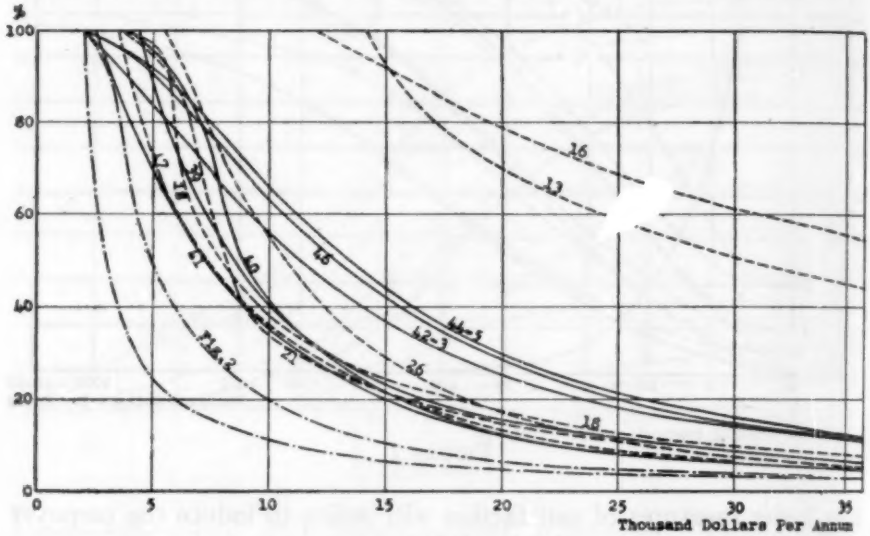

FIGURE 3

If the equation of the demand curve f is known, all three types of tax rates corresponding to successive values of x can be readily computed. In Figure 2, presented for illustrative purposes, they are shown as solid lines for Type I above, broken lines for Type II and dotted lines for Type III. The numbering at both ends of these lines indicates what percentage of the surplus they take away. Such lines may well be called *tax isobars,* because they connect points of equal pressure upon taxpayers, if the demand curve is correct.

Next, let us return to Figure 1 and apply the reasoning to the actual tax-rate curves of Type I shown therein. What shapes would the demand curve have to have, in order that such isobars may result?

By reversing the mathematical processes outlined, the answers are given in Figure 3, using a linear scale to preserve comparability. Since

the rates prescribed by tax laws are discrete rather than continuous variables, *i.e.*, the rates III jump from bracket to bracket, the computed demand curves actually resemble descending stairs which were smoothed in Figure 3. It would have been difficult to distinguish them otherwise, because the same brackets are often used in different years. Another departure from the continuous presentation of Figure 2 is that the 100 per cent point of each demand curve denotes, not the size of the initial exemption, but the centre of the first tax bracket. This also is a necessary consequence of discontinuous rates, for no part of the first bracket may be assigned a 100 per cent weight without obtaining automatically the same weight for its remainder.

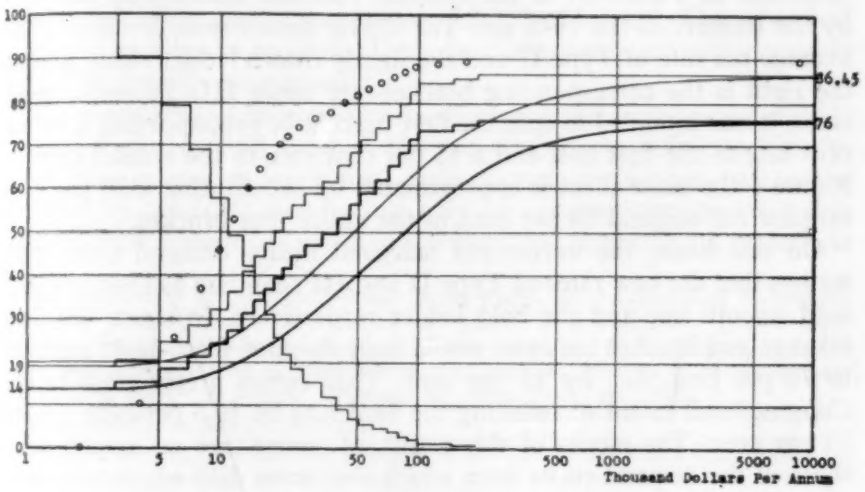

FIGURE 4

Despite these imperfections of Figure 3, it may be readily seen that the various demand curves have little in common. In the absence of changes in economic conditions, all tax laws should have been framed on the basis of one and the same demand curve. Among economic developments which do change the demand curve, war-induced shortages in the satisfactions available come first to mind. Under such conditions the demand curve should decline faster than in normal times, but the initial exemption should remain the same. That exemption should never be changed as a matter of revenue policy, but only as the minimum standard of living changes. As inflation progresses, the exemption and all brackets should be increased proportionately, lest every wage-earner get into the top bracket in the end, where he will have nothing left to

meet living expenses.[5] Long-term trends in the development of new satisfactions or shifts in the cost of old ones will of course also change the demand curve of money. It seems clear that the changes made in the shape of that curve by successive laws were not induced by any such reasoning.

To review the issues in the 1947 tax-reduction dispute, Figure 4 shows how the 30 per cent reduction, at the bottom of 1946 rates, would have changed rates in the higher brackets, assuming of course that the demand curve implicitly underlying the 1946 act would have been as satisfactory in 1947 as it was in 1946.

The ladder descending from the upper left corner of Figure 4 (seen smoothed in Figure 3) is the demand function unwittingly assumed by the framers of the 1946 act. The lightly drawn smooth curve is the average tax rate of Type II and the lightly drawn ladder rising toward the right is the corresponding bracket-rate curve III. To revise these rates, it was intended to split the first bracket in two, applying a 13 per cent rate to the first half and a 15 per cent rate to the second half. In Figure 4 the same effect is approximated by substituting a 14 per cent rate for the original 19 per cent in the entire first bracket.

On this basis, the unchanged marginal utility demand curve prescribes that the new rates of Type II and III shall rise as shown by the bold smooth line and the bold ladder respectively. In short, the final average and bracket tax rates would have dropped from 86.45 per cent to 76 per cent, *i.e.*, by 12 per cent. That comes pretty close to the Congressional intent of reducing the final rate by 10.5 per cent, *i.e.*, to 77 per cent. The merits of this result, of course, are no greater than those of the demand curve from which they were derived. At any rate, however, the reduction computed in Figure 4 can not be rejected without calling the 1946 act just as unsound and unfair as the proposed reduction.

It should be clear from the foregoing that the proper approach to such a method of progressive taxation consists of finding the correct demand function first of all. Until research is completed on a sampling

[5] From this viewpoint, the curves of Figure 1 are not comparable. For instance, according to the Bureau of Labor Statistics, the cost of living increased between 1940 and 1946 by about 50 per cent. To make the tax rates of those two years comparable in terms of purchasing power, the 1946 curve should be pushed bodily to the left until, *e.g.*, the 70 per cent average tax corresponding to a 1946 income of $150,000 is located on the $100,000 ordinate, the latter sum having had the same purchasing power in 1940. Since the 1946 rates call for a 63 per cent average tax on $100,000, inflation has in effect increased the burden of this particular taxpayer by 7 per cent. Similarly to a man with $15,000 income in 1946, who would have made only $10,000, if the price level had not risen, the tax burden increased from 22 per cent to 27 per cent. In this sense, the demand curves of Figure 3 are not comparable either, *e.g.*, the 1946 curve should be compressed toward the left by plotting the $30,000 point at $20,000 and in proportion for other points.

basis,[6] attempts to improve present methods of progressive taxation must be limited to a correction of the most obvious defects. For instance, it is difficult to find a theoretical justification for the initial humps appearing in post-1940 tax rates of Type I in Figure 1. It is highly improbable that the true but unknown demand curve should call for more than two inflections in a Type I isobar.

The practical reason for the humps here objected to is of course that it was easiest to raise the large sums needed for war from the poor. President Truman is therefore right in saying, in his second veto message, that ". . . to lessen this wartime tax burden, it is only fair that we should follow a pattern, which is the reverse of that under which the burden was imposed."[7] In the light of Figure 1, that should mean the elimination of the 1946 hump below $12,000 of income. The numerical examples he cites in support of this laudable thesis are unfortunately false, *i.e.*, greatly exaggerated.[8]

The second major objection to the shapes of the actual rate-curves is that all final rates fall short of 100 per cent for an infinitely high income. The greater or lesser final gaps allowed in all years can not be justified by pertinent theory, but only by relying upon certain pleas anent capital formation, which are beyond the scope of this paper. As

[6] The trailbreaker in this direction was Irving Fisher. See "A Statistical Method for Measuring Marginal Utility and Testing the Justice of a Progressive Income Tax," *Economic Essays in Honor of John Bates Clark* (Macmillan, 1927). Ragnar Frisch and Hans Staehle have carried on these studies. *Cf.* James N. Morgan, "Can We Measure the Marginal Utility of Money," *Econometrica* (Apr., 1945), pp. 129-52.

[7] *New York Times*, July 19, 1947, p. 2.

[8] He says, *loc cit.*, "The bill would remove 21 per cent of this wartime tax burden for a married couple with an income of $2,500. . . . The bill would remove 64 per cent of this wartime tax burden for a couple with an income of $100,000. . . . The bill would remove 85 per cent of this wartime tax burden for a couple with an income of $1,000,000." The facts are as follows: On a $2,500 income the tax would have dropped from $285 to $205, *i.e.*, by 28 per cent. The income after taxes would have risen from $2,215 to $2,295, *i.e.*, by 3.6 per cent. On a $100,000 income the tax would have dropped from about $63,000 to about $53,000, *i.e.*, by 16 per cent. The income after taxes would have risen from about $37,000 to about $47,000, *i.e.*, by 27 per cent. On an income of $1,000,000, the tax would have dropped from about $839,000 to about $751,000, *i.e.*, by 10.5 per cent. The income after taxes would have risen from about $161,000 to about $249,000, *i.e.*, by 55 per cent.

These results do not explain Mr. Truman's statements. Possibly, however, his phrase "wartime tax burden" should be interpreted to mean the difference between 1939 and 1946 taxes, 1939 having been the last year before introduction of defense taxes. Under the 1939 act, the tax liabilities of the three married couples would have been zero, $32,500 and $678,000 respectively, in round figures. Therefore, on an income of $2,500, all of the $285 due in 1946 was a wartime burden. The $80 reduction proposed therein thus equals 28 per cent. On an income of $100,000, $30,500 was a wartime burden. The $10,000 reduction proposed therein thus equals 33 per cent. On an income of $1,000,000, $161,000 was a wartime burden. The $88,000 reduction therein thus equals 55 per cent. These figures still support Mr. Truman's thesis, but his overstatements are nevertheless regrettable.

far as the theory outlined in Figure 2 is concerned, the reasoning must be as follows:

Even if it be conceded that the sum total of all possible satisfactions, *i.e.*, the area below the demand function f may attain infinite magnitude, nevertheless income, as a purely mathematical concept, is capable of extension without limit beyond that magnitude. Accordingly, it must be concluded that the theoretical limit of income is an infinite amount of higher order than the infinite amount of satisfactions income can buy. This means that the quotient of the total satisfactions by the total income must ultimately converge toward zero. It follows that the total satisfactions available after taxes can not exceed an infinite amount of lower order than the infinite income before taxes. Going one step further, the infinite income after taxes y must also be of order lower than the infinite income before taxes. In short, the limit of the fraction y/x must be zero, as both y and x increase without limit. Substitution of this result in formulae I, II and III confirms that the upper limit of all must be 100 per cent.

The reason why tax rates fail to converge toward a limit of 100 per cent is that the false demand functions, upon which all sets are unwittingly based, do not decline fast enough in the terminal part of their range. All demand functions shown in Figure 3 are, by virtue of the way in which the Treasury's rate-tables are constructed, of the general form

$$f(x) = A(x - B)^{-u},$$

where A, B and u are constant within each bracket, but change from bracket to bracket. The successive magnitudes of the exponent u are shown for 1946 in Figure 4 as small unconnected circles rising toward the right. When, as in this instance, u is never allowed to approach unity, the total area below the demand curve becomes an infinite quantity of the same order as $x = \infty$ and therefore the income after taxes $y = \infty$ is also of the same order as x. Thus the limit of the fraction y/x is not zero but a definite percentage, namely the complement of the final tax rate. The smaller the exponent u is in the final bracket, the lower the final tax rate will be. On the other hand, if u equals or exceeds unity, the final tax rate will always be 100 per cent. The higher such a final value chosen for u, the faster the tax-rate curves will converge toward 100 per cent, though they will in no event attain it until $x = \infty$.

The demand curve f presented in Figure 2 is a first attempt to find a shape which will correct the major inequities inherent in the 1946 law. The initial hump shown in Figure 1 was eliminated partly by a change of shape and partly by increasing the exemption from \$1,000 to $m =$

$2,000. All isobars were also made to converge toward 100 per cent at $x = \infty$.

Figure 4 shows that the 1946 bracket widths and rates were somewhat negligently chosen, *i.e.*, it would be difficult to draw a smooth curve through the successive steps. Figure 2 is an improvement in this respect also. For practical purposes, of course, its smooth marginal rate-curves would have to be converted into bracket-steps, avoiding changes of less than 1 per cent in height and fractions of $1,000 in width, except in the subdivisions of the present first $2,000 bracket.

That the exponent u should grow with income seems reasonable because, in the low income brackets, it is easier to find good use for an additional dollar than in the high brackets. This feature of the constructive 1946 demand function was therefore retained, but moderated. The exponent u was made to rise faster, smoother and up to unity for an infinitely high income. Perhaps it would have been even better to let it rise to unity for some large finite income and beyond unity thereafter.

To permit comparison with the demand functions reconstructed from the various laws, the curve suggested in Figure 2 is also shown in Figure 3, along with the simple function $f = A/(x - A)$, *i.e.*, $u = 1$.[9]

Even though, in Figure 2, all isobars converge toward a limit of 100 per cent, it may be seen that a reduction in the initial tax rate provides substantial relief in the high brackets also. In general, the 20 per cent isobars were intended as extremes, justifiable only in a dire national emergency. The 10 per cent isobars are a suggestion for an early postwar tax, while the 5 per cent isobars would go a long way toward meeting the valid part of Mr. Truman's objections to the 1947 bill.

The demands of labor leaders can not be heeded within the framework of the proportionate sacrifice theory. It is mathematically impossible to find a demand curve of such a shape that all isobars derived from it shall vary from each other by appropriate constant percentages of the income after taxes. The demand curve must change whenever any conceivable set of rates is revised in such a manner. But if the demand curve is changed for any reason other than a change in economic conditions, the principle of proportionate sacrifice is immediately upset. Upon carrying the tax-reduction theory of organized labor to its logical conclusion, it would eventually wipe out all taxes in the lower brackets,

[9] This is the function corresponding to Bernoulli's suggestion that happiness derived from property (after deducting a minimum which affords the bare necessities of life) increases at the rate which small successive increments of property bear to the property on hand before the last increment. Cramer's thought was that pleasure afforded by wealth increases as the square root of its amount. This means $u = \frac{1}{2}$.

thereby increasing exemptions beyond the minimum standard of living. This also would violate the principle of proportionate sacrifice.

The most radical plan compatible with that principle is the one advanced by the late President Roosevelt, who suggested that no one should, in times of war, be able to keep more than, say, $25,000 of his income. In terms of the present analysis, this means that the demand curve shall decline to zero for some moderate income x, say $40,000. The mathematics involved are very simple, the substance being that the bracket tax rate shall rise to 100 per cent at $x = \$40{,}000$. The two average tax rates will converge, as before, toward 100 per cent at $x = \infty$, but from $x = \$40{,}000$ onward they will rise so fast that the difference between them and 100 per cent will be halved every time the income doubles. During the recent war, Great Britain used a similar system of taxation, except that there the maximal amount which any taxpayer might retain, depended upon his average earnings before the war. The merits of such discrimination are doubtful; on a uniform basis, however, there is much to be said in favor of the idea that, in times of war, the sum total of extant personal satisfactions actually is, or patriotically should be, limited.[10]

In conclusion it may be said that, although the theory of proportionate sacrifice is based upon certain generalizations[11] and therefore must be imperfect, it still suggests definite improvements in present methods of progressive taxation. Fortunately, these improvements would cause no great upheaval and could be introduced almost imperceptibly. If tax-law-makers would start thinking at least part of the time in terms of the demand curve and not exclusively in terms of "political bargains,"[12] a more equitable distribution of the tax burden could be confidently expected.

The very least that should be done before fixing a new set of progressive rates is to compute the demand curve corresponding to those new rates and to see whether the resultant changes in the shape of the previous demand curve look reasonable in the light of changes in economic conditions observed since the effective date of the previous revenue act. Figure 3 bears eloquent testimony that such a test has never been applied before.[13]

[10] As a matter of fact, there is less difference between this plan and the 20 per cent *isobars* of Figure 2 than might be expected. Those isobars would leave the taxpayer $18,000 out of $100,000, $24,000 out of $1,000,000 and $34,000 out of $10,000,000.

[11] *Q.v., loc. cit.*, in note 3.

[12] *Cf.* Blough, *op. cit.*, p. 13.

[13] As the galleys are being corrected, the tax-reduction controversy is once more in full swing and the shape of the ultimate political bargain is still vague. President Truman's suggestion that the first $40 of tax due under the 1946 act be forgiven is clearly inconsistent with the principle of proportionate sacrifice. It amounts to claiming that the minimum standard of living is now $710 for the poor, but only $546 for the rich.

Mathematical Appendix

For mathematically inclined readers, the rate-making principle may be formulated as follows:

$$\int_y^x f(z)dz = r\int_m^x f(z)dz. \tag{1}$$

This expression states that the surplus satisfactions to be taken away by taxes (*viz.*, the area below the demand curve f, between the income before taxes x and the income after taxes y) shall always be r per cent of the total surplus commanded by an income x (*viz.*, the entire area below the demand curve f, between the tax-exempt minimum m and the income before taxes x).

Computation of Tax Rates from Demand Curve

When the demand curve f is known, the three types of isobars introduced in the text can be computed by solving equation (1) for y and substituting the result in formulae I, II and III. For instance, if

$$f(z) = z^{-u}, \tag{2}$$

there will be obtained

$$y = [(1-r)x^{1-u} + rm^{1-u}]^{1/(1-u)} \tag{3}$$

and

$$dy/dx = (1-r)[1 - r + r(m/x)^{1-u}]^{u/(1-u)}. \tag{4}$$

The tax rates are thus determined by the demand function for any value of x and r. The initial rates for any given r are:

$$\begin{aligned} &\text{I} && \operatorname*{limit}_{x=m} \frac{x-y}{x} = 0; \\ &\text{II} && \operatorname*{limit}_{x=m} \frac{x-y}{x-m} = \frac{0}{0} = \operatorname*{limit}_{x=m} (1 - dy/dx); \\ &\text{III} && \operatorname*{limit}_{x=m} (1 - dy/dx) = r. \end{aligned} \tag{5}$$

Another suggestion now in the limelight is the equal division of income between spouses. It will equalize the tax burdens now imposed in different parts of the country, but should be supplemented by a subdivision of the lower brackets, in order that it may benefit not only the middle class, but the poor as well. As shown in this paper, such a subdivision is necessary in any event for the elimination of the unfair wartime hump on the left of Figure 1. Incidentally, a great deal of time and effort could be saved to the Treasury and taxpayers alike by prescribing joint returns subject to double brackets.

Preferential treatment of earned income and dividends is not contemplated now, though this feature of former tax laws should be restored to improve the definition of proportionate sacrifice used in this paper.

The terminal rates depend upon whether the exponent u is greater or less than unity:

$$(6)\quad \left.\begin{array}{ll} \text{I} & \operatorname{limit}_{x=\infty} \dfrac{x-y}{x} = \dfrac{\infty}{\infty} = \\ \text{II} & \operatorname{limit}_{x=\infty} \dfrac{x-y}{x-m} = \dfrac{\infty}{\infty} = \end{array}\right\} \operatorname{limit}_{x=\infty} (1 - dy/dx)$$

$$\text{III} \quad \operatorname{limit}_{x=\infty} (1 - dy/dx) = \begin{cases} 1 - (1-r)^{1/(1-u)}, & \text{when } 0 < u < 1, \\ 1, & \text{when } u > 1. \end{cases}$$

On the borderline between the two results is the special case $u=1$, when

$$(7)\qquad y = m^r x^{1-r}$$

and

$$(8)\qquad dy/dx = (1-r)(m/x)^r,$$

$$(9)\quad \text{III} \quad \begin{cases} \operatorname{limit}_{x=m} (1 - dy/dx) = r; \\ \operatorname{limit}_{x=\infty} (1 - dy/dx) = 1. \end{cases}$$

Computation of Demand Curve Underlying Taxes Imposed

The amount of taxes $x-y$ due upon any amount of income is fixed by law and may be expressed in the form

$$(10)\qquad x - y = Rx - a,$$

whence

$$(11)\qquad y = a + bx; \qquad b = 1 - R.$$

The symbol R represents the bracket tax rate III and a is an amount which can be found from the Treasury's tables. Both are constant within each bracket, but grow from bracket to bracket. Within the first bracket, $R=r$ and $a=0$.

Upon differentiating the basic equation (1) with respect to the income x, there is obtained

$$(12)\qquad f(y)\frac{dy}{dx} = (1-r)f(x),$$

so that, by (11)

$$(13)\qquad f(a+bx) = \frac{1-r}{b} f(x).$$

But to some finite value $x=M$, there must correspond $f(M)=1$. Therefore

$$f(a+bM)=\frac{1-r}{b}f(M)=\frac{1-r}{b}; \tag{14}$$

$$f[a+b(a+bM)]=\frac{1-r}{b}f(a+bM)=\left(\frac{1-r}{b}\right)^2;$$

$$f(a+ab+ab^2+b^3M)=\left(\frac{1-r}{b}\right)^3$$

and so forth up to the limit, where $Mb^\infty=0$ and $a(1+b+b^2+\cdots+b^\infty)=a/(1-b)$. It follows that

$$f(a/R)=\left(\frac{1-r}{1-R}\right)^\infty=\infty; \qquad R>r. \tag{15}$$

Conditions (13), (15) and the obvious stipulation $f(\infty)=0$ are met by a demand function of the form

$$f(z)=A\left(z-\frac{a}{R}\right)^{-u}, \tag{16}$$

which is essentially similar to (2). The symbols A and u represent unknown constants differing from bracket to bracket. Substitution of (16) into (13) yields the relation

$$1-R=(1-r)^{1/(1-u)} \tag{17}$$

defining u. This relation is important because it provides a simple means for finding the proper bracket tax rates R corresponding to any initial tax rate r. In Fig. 4, for instance, the 1946 law fixed $r=.19$ and various bracket rates R beginning with .19 and ending with .8645. From these data, formula (17) furnished the corresponding values of the exponent u. Then r was reduced to .14, whereupon the same formula, with the set of exponents just determined, furnished the new set of rates R which must now apply to the successive brackets, if the demand curve is to remain the same.

To define the demand function completely, the set of coefficients A must also be computed. This can be done by recourse to equation (1), but only if the integration is subdivided according to the successive brackets. Such discontinuities, however, destroy one principal merit of calculus, namely simplicity. For the task in hand, the algebraic approach seems more efficient, especially if an electric calculator is available. This approach consists of dividing the area below the demand

curve into vertical rectangular strips corresponding to the Treasury's brackets and then using the algebraic counterparts of equation (1). The first such counterpart is:

$$T_j = \frac{r}{f_j} \sum_{i=1}^{j} f_i \Delta_i x; \qquad i = 1, 2, 3, \cdots, j; \tag{18}$$

wherein T_j is the amount $x-y$ of the tax due at the end of the jth bracket, f_i the height of the ith bracket-strip and $\Delta_i x$ the width of the ith bracket. By successively placing $j=1, 2, 3, \cdots$, there will be obtained:

$$T_1 = r\Delta_1 x; \qquad f_1 = 1;$$

$$T_2 = \frac{r}{f_2}(f_1\Delta_1 x + f_2\Delta_2 x); \qquad f_2 = \frac{r\Delta_1 x}{T_2 - r\Delta_2 x};$$

$$T_3 = \frac{r}{f_3}(f_1\Delta_1 x + f_2\Delta_2 x + f_3\Delta_3 x); \qquad f_3 = \frac{r(\Delta_1 x + f_2\Delta_2 x)}{T_3 - r\Delta_3 x};$$

and so forth, so long as T_j does not exceed the width of the last bracket $\Delta_j x$. When it does, the formula must be changed to

$$T_j = \left[\frac{r}{f_j} \sum_{i=1}^{j} f_i \Delta_i x - \Delta_j x\right] \frac{f_j}{f_{j-1}} + \Delta_j x, \tag{19}$$

whence

$$f_j = \frac{r \sum_{i=1}^{j-1} f_i \Delta_i x - (T_j - \Delta_j x) f_{j-1}}{(1-r)\Delta_j x}.$$

This formula, in turn, is valid only so long as T_j does not exceed the combined widths of the last two brackets. The revision next in order is:

$$T_j = \left\{\left[\frac{r}{f_j} \sum_{i=1}^{j} f_i \Delta_i x - \Delta_j x\right] \frac{f_j}{f_{j-1}} - \Delta_{j-1} x\right\} \frac{f_{j-1}}{f_{j-2}} + \Delta_j x + \Delta_{j-1} x \tag{20}$$

$$f_j = \frac{r \sum_{i=1}^{j-1} f_i \Delta_i x - (T_j - \Delta_j x - \Delta_{j-1} x) f_{j-2} - f_{j-1}\Delta_{j-1} x}{(1-r)\Delta_j x}.$$

Further revisions must be made each time another bracket is about to be filled up with taxes, counting backward from the last one. Fortunately, the Treasury's brackets grow wider toward the end. This is the way in which the demand curves of Fig. 3 were computed. For smooth-

ing purposes, the values of f_j were plotted in the middle of their brackets.

Flaw in Labor Leaders' Tax Reduction Plan

The problem consists of finding a purported demand function which will generate a Type II rate-curve, such that all of its points shall rise or fall in proportion to their respective distances from the top of the scale (100%), as its initial point, having the ordinate r, is varied between zero and 100%. Such a rate-curve would be:

$$\text{II} \qquad \frac{x - y}{x - m} = 1 - (1 - r)v, \tag{21}$$

where v is some suitable function of limited variation in x alone, which declines continuously from $v(m) = 1$ to $v(\infty) = 0$. Curve (21) accordingly varies with respect to the income x between r at $x = m$ and unity at $x = \infty$, as it should. Upon solving for y, there is obtained

$$y = m + (1 - r)(x - m)v \tag{22}$$

and

$$dy/dx = (1 - r)[v + (x - m)dv/dx]. \tag{23}$$

Substitution of (23) in (12) cancels the coefficients $(1-r)$ leaving:

$$f(y) = \frac{f(x)}{v + (x - m)dv/dx}. \tag{24}$$

Since the right member of this equality is a function of x alone, the left member can not be anything else, i.e., it must also be independent of the initial tax rate r. But it is the essence of the problem that the left member shall vary with r. Equations (22) and (24) accordingly contradict each other, meaning that the problem is insoluble. No such function f exists and therefore the tax reduction plan advocated by labor leaders is incompatible with the principle of proportionate sacrifice.

COMMUNICATIONS

Britain's Economic Problem

The shock of last August's enforced abandonment of the recently resumed convertibility of sterling has had a salutary effect on this country, and almost for the first time there are some real signs, both in Parliament and in the constituencies, that the seriousness of our position is at last being recognised.

The cause of the immediate problem confronting Britain is simple. Before the war our imports, on an f.o.b. basis, were running at a rate of rather under £850 millions a year and our exports at rather under £550 millions, leaving a gap of about £300 millions which was divided, or nearly filled, by our so-called "invisible exports"—interest and dividends on our foreign investments, earnings abroad from our shipping industry, insurance companies and banks, and a number of minor sources of income. Since 1938, prices of our imports have risen by over 250 per cent. If prices of both imports and exports had risen by this amount, the cost of our prewar quantity of imports would have risen to £2100 millions, and the value of our prewar exports to £1350 millions, so that the gap would have widened to £750 millions. In point of fact, the rise in prices of our exports has been only some 235 per cent, which adds nearly £100 millions to the potential gap, making it some £850 millions in all. To fill this on a prewar basis would have required a trebling of the sterling value of our net invisible exports. Instead of trebling, they have been reduced to nothing by our wartime sales of foreign assets, increase of foreign debts and losses of ships, thus leaving the whole £850 millions of the gap unfilled. We have tried to close this by keeping our imports down to about three-quarters of what they were before the war, and trying to expand exports; but these efforts have been largely offset by the continued heavy cost of our military and other government expenditures abroad, with the result that our net adverse balance on income account for 1947 was no less than £675 millions. Even if the exhaustion of the dollar credits had not been accelerated by the necessity of financing the excess imports of India and other members of the sterling area, it is unlikely that the crisis could have been postponed for more than another few months unless in the meantime the country had awakened to the danger of its position and taken urgent action to remedy it.

The country is now living on its last reserves. At the end of December, there remained, in addition to the last £75 millions of the United States credit and rather over £60 millions of the Canadian credit, a little more than £500 millions of gold. In addition, we had the right to draw another £20 millions from the International Monetary Fund and have arranged for a gold loan of £80 millions from South Africa. At the most, we had perhaps £750 millions to meet

drawings, on behalf both of ourselves and of other members of the sterling area, which have recently been running at a level of nearly £50 millions a month. At this rate, our reserves would be reduced below danger level well before the end of the present year. It can thus be seen that the position is serious indeed. If we should come to the end of our reserves with exports at their present level, we should be obliged to reduce our imports to little more than half their prewar quantity. This would mean either that our food supplies would fall well below the point at which the population, already by no means over-fed, would be able to perform its work efficiently, or that shortages of raw materials would cripple our industries and throw millions out of work. In either case, exports would decline and there would be initiated a vicious circle of progressive impoverishment.

To meet this danger, the government is endeavoring to close the gap in our balance of payments from both sides. Sharp cuts have been made in our programme for all imports that are not absolutely essential—though some of the foodstuffs that are being reduced will certainly seem essential to the harassed housewife—while the greatest efforts are to be made to expand exports. It is estimated, with the import cuts and with no further rise in prices of imports, an increase of 30 per cent in our present level of exports would suffice to close the gap by the end of 1948 and leave us with some £250 millions of our gold reserve still intact.

Is such an expansion of exports possible in so short a time? For the last eighteen months exports have been very disappointing. During the first half of 1946 they rose more rapidly than had been hoped, and by the third quarter of the year were some 10 per cent above the prewar level. Then their rise was checked; they fell back during the coal crisis of last winter, struggled upwards during the spring and summer, and have only recently begun to exceed the level reached in the late summer of 1946. The set-back was not due to a failure of demand in export markets. Though signs of increased selling difficulties are now beginning to appear, largely as a result of increased restrictions on imports by other countries which are also suffering from a shortage of dollars, at that time the sellers' markets was still in full force. The check to exports was entirely due to internal causes, and these were by no means all due to production difficulties, for exports had begun to falter well before the onset of the coal crisis. A very important contributory factor, and perhaps the fundamental cause, has been the size of the internal demand, which has made it more profitable for many producers to sell at home than to export; and the ultimate cause for this excessive home demand is the pressure of inflation, which, despite the successful operation of direct controls in certain fields, has been making itself felt over an ever-increasing part of the national economy.

The effects of the excessive quantity of money and of its counterpart, artificially low interest rates, have shown themselves mainly in two ways. On the one hand, the excess purchasing power, prevented from driving up prices of essentials, has stimulated the demand for, and the supply of, non-

essential goods and services, including the demand for the only luxury that, owing to our very high and progressive direct taxes, is cheaper now than before the war—a luxury that today we can in reality so ill afford—the luxury of increased leisure. On the other hand, the artifically low interest rates have created the illusion that capital is plentiful, whereas in real terms it has been extremely scarce, and have misled us into attempting to carry out an excessive programme of capital construction, and especially of house-building. The result has been that not only have we diverted resources from the expansion of exports, but we have found ourselves unable to obtain the resources to complete many of the constructional projects we have commenced and have found ourselves with an increasing part of our scarce capital locked up uselessly in uncompleted works. In other words, we have attempted to expand both our consumption and our investment faster than we have expanded our production, and have partly filled the gap by borrowing from abroad.

In its efforts to stimulate exports, the government continues to rely mainly on direct controls. Manufacturers are instructed to export a larger proportion of their output, either by diverting a part of their existing sales on the home market or by changing their type of product, under threat of withdrawal of their supplies of raw materials, especially steel. Additional labour is to be supplied to export and other essential industries by insisting that no labour within certain age groups may be engaged except through the government labour-exchanges; so that any unemployed person in those groups can be recommended, or in the last resort instructed, to take a job where the government considers he is most wanted. It is hoped that this machinery, together with the withdrawal of material supplies from non-essential industries, may compel an appreciable transfer of labour from less to more essential industries. In addition, those employed in certain work, such as street trading and football pools, are now obliged to register even though employed and may be compulsorily directed to more urgent work. At the same time, it is planned to reduce expenditure on capital construction of all types in 1948 by some £180 millions a year below the rate planned and by £130 millions below the present year. The great bulk of the reductions will come on building other than housing and on additions to the country's stock of road transport. The effort going into housing, which many critics thought should be substantially cut, will be relatively little reduced, and while rather fewer houses will be commenced, more will be completed during next year.

Doubts have been expressed as to whether these measures will be adequate to meet the situation. The problem of enforcing the diversion of output to export and of guaranteeing adequate supplies of scarce materials to those engaged on work for export will be difficult enough when dealing with makers of final products; with sub-contractors and makers of components, most of whom have no knowledge about the ultimate destinations of what they make, the difficulties seem enormous. Similar doubts are felt about the adequacy of

the provisions for directing labour, as well as the attitude to work of persons directed against their will. Further, the reduction of supplies to the home market without a corresponding reduction in the quantity of money to be spent will tend to raise the inflationary pressure still further and make still more profitable the diversion of resources to non-essential production. The increases in taxation introduced at the recent interim budget are designed to reduce this pressure, but they are widely regarded as inadequate. The government's problem is undoubtedly difficult. If the policy of disinflation by means of budget surpluses is carried far enough to remove the excess of surplus purchasing power, there is a possibility that it will lead to a higher level of unemployment than would be acceptable to the Government's supporters. If, on the other hand, the present vicious spiral of rising prices and wages is allowed to persist, our exporters may be rendered incapable of competing in world markets. The government is now attempting to find a way out of this dilemma by endeavouring to peg wages, prices and profits; but the political difficulties confronting this policy seem likely to be almost as great as its economics are doubtful.

Nevertheless, there are real signs that organised labour is at last beginning to realise the position, and to appreciate that increased output is necessary to save, if not the country, at least the labour government, from disaster. The consent of the miners to work extra shifts has raised coal output above the danger level for internal needs, and is beginning to leave a slight margin for exports. The output of steel, the present limiting factor for most types of production, is running at the high level of over 14 million tons a year. The building industry has accepted the principle of payment by results and a substantial increase in output per head is hoped for. If the country is given time to forget the widespread belief that to work harder is to deprive a fellow worker of his job, and to learn to regard it as the only road to an improved, or even maintained, standard of living, there is good reason for hoping that we shall ultimately be able to expand output to the point where it will be possible to reconcile a high rate of exports with adequate levels of both consumption and investment. But time is desperately short, and even if the internal difficulties of expanding exports are overcome, the problem of selling them to people able to pay for them may prove insuperable. It is here that assistance from the United States may prove of the greatest help. Direct help to this country would give us more time to make the great adjustments that are required, and, provided that it did not make us relax our efforts, would be of the greatest value. But the provision to other countries of dollars which they were free to spend on our goods, and so furnish us with what we need to pay for our own imports from North America, would be of almost equal value. For this country, the conditions under which any United States aid given to Europe is supplied will be as important as its amount.

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Built-in Flexibility*

I

The essence of compensatory fiscal policy lies in adjusting the level of government receipts and expenditures so as to stabilize total income (and employment) in the economy. This requires an increase in expenditures and a reduction in tax revenue during periods of deflation and a decrease in expenditures and increase in tax revenue during periods of inflation. Such compensatory movements may be brought about by properly timed changes in expenditure programs and in tax rates, but to some extent they occur automatically. Certain public expenditures, such as unemployment benefits, are geared to move in a countercyclical fashion. Similarly, tax yields under given statutory rates will fluctuate with changes in the national income since the size of the tax base usually varies directly with the level of income. Recently, the automatically compensatory movement of tax revenues—generally referred to as "built-in flexibility"—has received increasing attention. The purpose of this note is to appraise its importance as a stabilization device.

II

The magnitude of the automatically compensatory adjustment will depend of course upon the dollar change in tax revenue resulting from a given dollar change in the national income, that is, upon the "marginal tax rate" and the problem might be formulated in terms of this marginal rate.[1] There is, however, a more detailed and for our purposes more useful way of stating the problem. The fiscal planner, from year to year, is confronted with setting an "average tax rate," that is, a rate which will raise the desired amount of tax revenue at the expected level of income. This total revenue can be raised by various combinations of statutory rates and tax sources, and different combinations will result in tax systems which possess different degrees of sensitivity of yield in response to changes in income. It is the selection of one of these combinations and of the rates necessary to produce the desired yield from the expected level of income that determines the extent of "built-in flexibility" or the marginal tax rate for the system as a whole. Consequently, the degree of flexibility will be analyzed in this note in terms of the level of taxation (average tax rate at the expected level of income) and the sensitivity to changes in income of the selected combination of tax sources.

To measure the effect of "built-in flexibility," it is useful to start with a simplified model which assumes that public expenditures are fixed and wholly for goods and services, that all taxes are in the form of a personal income tax, that there are no corporate savings in the economy and that the level of investment is independent of taxation. The expression for the *change* in income be-

* The authors are indebted to Mr. Alfred Sherrard for his helpful suggestions and criticisms in the preparation of this note.

[1] For a statement of the problem in terms of the marginal rate see note 2 below.

tween two periods may then be written as

$$\Delta Y = \Delta I + c\Delta Y - c(r_1 Y_1 - r_2 Y_2) \tag{1}$$

where ΔY equals $Y_1 - Y_2$ or the change in income from the first to the second period and ΔI equals $I_1 - I_2$ or the change in investment; (c) is the marginal propensity to consume out of disposable income which is assumed to remain constant; and (r_1) and (r_2) are the *average* rates of tax in the two periods.

The income elasticity (E) of the tax yield (T) is the ratio of the percentage change in tax yield to a given percentage change in income and may be expressed as

$$E = \frac{(\Delta T) Y_1}{(\Delta Y) T_1} \tag{2}$$

Solving for ΔT and substituting the result for $(r_1 Y_1 - r_2 Y_2)$ in equation (1) gives

$$\Delta Y = \Delta I \frac{1}{1 - c + cE \frac{T_1}{Y_1}} \tag{3}$$

and by substituting (r_1) for $\left(\frac{T_1}{Y_1}\right)$ we obtain[2]

$$\Delta Y = \Delta I \frac{1}{1 - c(1 - Er_1)} \tag{4}$$

As a convenient measure for the compensatory effectiveness of "built-in flexibility" we may then write

$$\alpha = 1 - \frac{\Delta Y}{\Delta Y_a} \tag{5}$$

where ΔY refers to the change in income in the particular tax system under discussion (with its specific positive value for Er_1) and ΔY_a refers to a system where (E) is set equal to zero. That is, $\frac{\Delta Y}{\Delta Y_a}$ is the ratio of the decline (or increase) in income in the particular tax system under analysis to the decline (or increase) in income if the system had no "built-in flexibility"; and (α), which is one minus this ratio, is the *fraction of the change in income which is prevented because of the existence of "built-in flexibility."* If

[2] Expressing the relationship in terms of the marginal tax rate or (m) equation (1) is rewritten as

$$\Delta Y = \Delta I + c\Delta Y - cm\Delta Y \tag{1a}$$

and solving for Y,

$$\Delta Y = \Delta I \frac{1}{1 - c(1 - m)} \tag{1b}$$

which of course is the same as (4) above because $(E) = \frac{m}{r_1}$.

$\alpha = 0$, there is no built-in flexibility; if $\alpha = 1$, built-in flexibility is perfect, *i.e.*, total income remains unchanged.

Substituting (4) in (5) we have

$$\alpha = 1 - \frac{1 - c}{1 - c(1 - Er_1)} = \frac{cEr_1}{1 - c + cEr_1} \tag{6}$$

Given the community's propensity to consume, (α) will thus vary directly with (r_1) and (E), the level of taxation and the income elasticity of the selected combination of tax sources. But "built-in flexibility" can never be so effective as to eliminate all change in income. However high the values for (E) and (r_1), (α) will be less than one in any economy whose propensity to consume is less than unity. As a practical matter, of course, (Er_1) could not exceed 1, that is a marginal tax rate of 100 per cent. At this extreme (α) would be equal to (c) and the investment multiplier would be fully offset (equation 4). The change in income before tax would be limited to the change in investment and income after tax would be stabilized.

In interpreting the concept (α) as here developed, it should be noted that (c) is not a variable in the same sense as (E) or (r_1). While the numerical value of (α) will increase as (c) increases, the absolute amount of the remaining change in income will also be larger (equation 4). Consequently (α) has relevance only for comparing the effect of different tax systems in a single economy, all of whose other basic relations (including the value of [c]) are held constant.

III

Turning now to a consideration of the magnitude of (α) for various tax structures under ordinary conditions, the assumptions in the simplified model must be revised to take account of transfer payments, excise taxes and most important, corporate savings and taxes.

The introduction of transfer payments presents no particular difficulties. They may be handled either by introducing into equation (1) a new term which expresses consumption out of transfer payments or they may be treated as "negative taxes" reducing (r_1).[3] By extending the analysis in this fashion a new equation (4) may be derived which allows for "built-in flexibility" on both the revenue and expenditure sides of the budget.

The introduction of excise taxes raises no serious difficulty if they can be thought of as paid out of consumer expenditures, that is, as personal income taxes assessed on an expenditure basis. This procedure permits a measurement of their contribution to the flexibility of the tax structure but it does not account for the complications arising from the fact that excise taxes are reflected in the price level of output. These complications, however, do not bear significantly upon the major argument here developed and can be neglected for simplicity's sake.

[3] For the simplest case where transfer expenditures are assumed constant, the decline in (r_1) would be offset by an increase in the value for (E) leaving (Er_1), the marginal tax rate, unaffected.

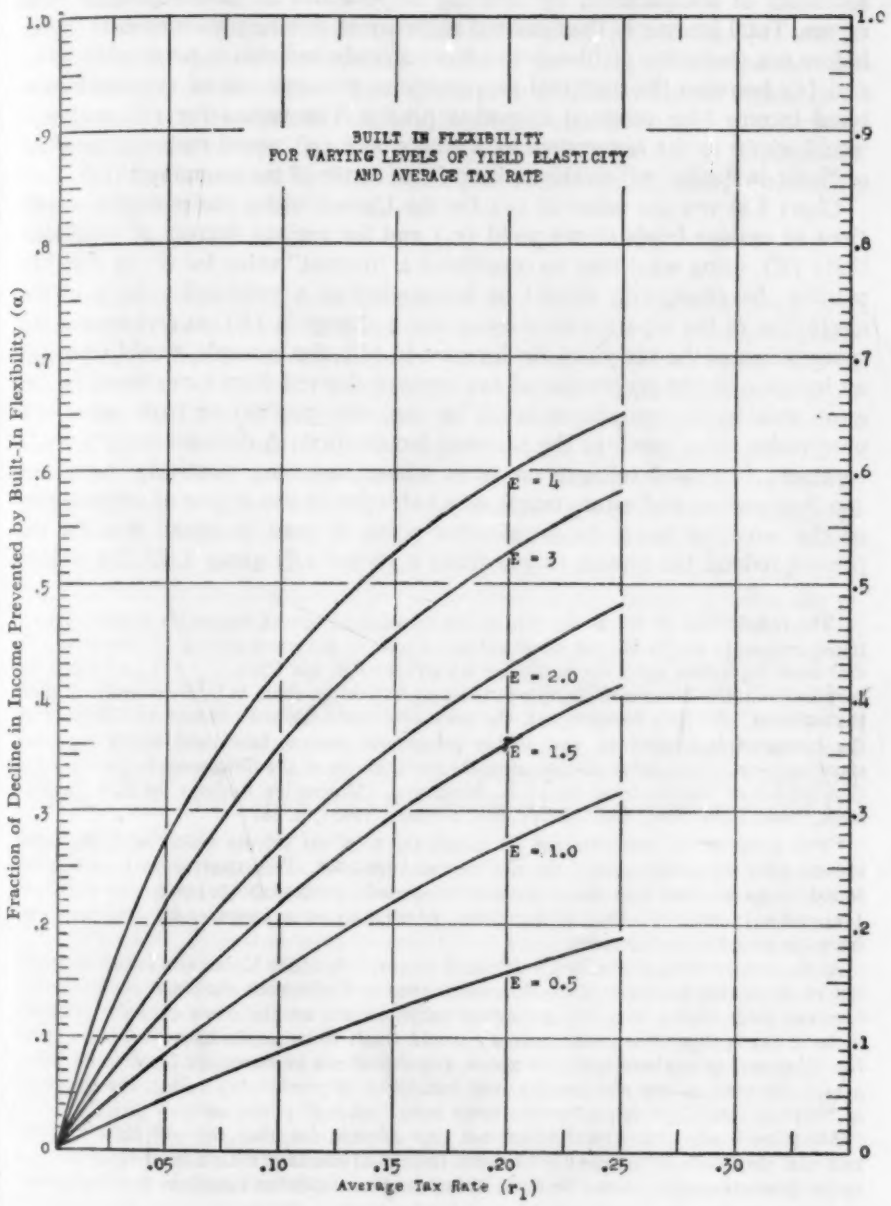
BUILT IN FLEXIBILITY
FOR VARYING LEVELS OF YIELD ELASTICITY
AND AVERAGE TAX RATE
Fraction of Decline in Income Prevented by Built-In Flexibility (α)
Average Tax Rate (r_1)
E = 4
E = 3
E = 2.0
E = 1.5
E = 1.0
E = 0.5
0
.1
.2
.3
.4
.5
.6
.7
.8
.9
1.0
.05
.10
.15
.20
.25
.30

CHART I

Corporate profits and corporate income taxes may be introduced with a minimum of complication by treating corporations as unincorporated businesses. Total income is then defined as personal income plus corporate profits before tax (but after dividends which are already included in personal income) and (c) becomes the marginal propensity to consume out of disposable personal income plus retained corporate profits. The values for (E) and (r_1) would apply to the tax system as a whole, and (α) would measure the effect of "built-in flexibility" on the entire private sector of the economy.[4]

Chart I shows the value of (α) for the United States under normal conditions at various levels of tax yield (r_1) and for various degrees of yield elasticity (E), using what may be considered a "normal" value for (c) of 0.65.[5] In reading the chart, (E) should be interpreted as a weighted average of the elasticities of the separate tax sources and a change in (E), as a change in the composition of the tax yield. An increase in (E), for example, would represent an increase in the proportion of tax revenue derived from taxes based on the more volatile income shares (such as corporate profits) or from taxes with progressive rates (such as the personal income tax). A decrease in (E) would represent increased reliance on taxes whose bases are relatively insensitive (such as excises and estate taxes) or a reduction in the degree of progressivity of the sensitive taxes. As a reference point, it may be noted that for the present federal tax system (r_1) is about 0.20 and (E) about 1.5.[6] The yield is

[4] The redefinition of (c) as the propensity to consume out of disposable income plus retained corporate profits has the disadvantage of making (c) more subject to changes in (Y) and more dependent upon the particular tax structure in use. Thus (c) will be lower if the corporation tax is lower and changes in the corporation tax share in total receipts will affect the value of (c). To a lesser extent, the same problem arises with respect to differences in the consumption impact of, say, highly progressive income taxes and highly regressive spending taxes. For a fuller discussion of the implications of the differences in the consumption impact of various taxes see R. A. Musgrave, "Alternative Budgets for Full Employment," *Am. Econ. Rev.*, Vol. XXXV, No. 3 (June, 1945), p. 387.

[5] This value of (c) was obtained by correlating total net private saving with disposable income plus corporate saving for the period 1929-1941. This thirteen-year period was found to be divided into three distinct sub-periods 1930-1932 ($[c] = 0.74$); 1933-1936 ($[c] = 0.63$); and 1937-1941 ($[c] = 0.54$), giving 0.65 as an average. All data used were from the new Commerce series.

At the present time, the value for (c) is, of course, very much higher and for consumption out of disposable income is probably greater than 1. Under such abnormal conditions (α) becomes much higher than the numerical values shown on the chart even for relatively inelastic tax system. The same tendency would result if an acceleration factor is allowed for. However, as has been indicated above, (α) should not be compared for different values of (c). In view of the abnormality and instability of present (c) values, the discussion of "built-in flexibility" is confined to some more "normal" post-transition period.

Attention is also called to the fact, not here allowed for, that (c) will differ with the rate and amplitude of income fluctuations. Instead of working with a fixed value of (c) a more elaborate analysis could be made in terms of consumption functions showing cyclical variations or time lags in adjustments.

[6] In 1946, personal income averaged 177.2 billion dollars and corporate profits (before inventory adjustment) 21.1 billion dollars. For 1947, the corresponding figures based on data for the first half year are 197.2 billion and 29.0 billion dollars. Federal personal income tax *liabilities* for 1946 at current tax rates and size of labor force may be put at 17.8 billion dollars

composed of corporation taxes 24 per cent; income taxes 50 per cent and other taxes 26 per cent.

The chart shows that for an (r_1) of 0.20 and an (E) of 1.5, (α) will be 0.358, that is, somewhat more than a third of the change in income due to a change in investment will be offset by "built-in flexibility" at that yield level. Should revenues be reduced uniformly by 50 per cent to an (r_1) of 0.10 without changing the composition of the yield, (α) will fall to 0.218. On the other hand, the effectiveness of "built-in flexibility" could be maintained at the lower level of yield by raising the average elasticity to 3.0.

IV

These preliminary considerations suggest that "built-in flexibility" may be an important factor in maintaining stability over the long run if taxes take a large proportion of income and if income elastic taxes are relied upon. But the analysis here provided lends no justification to the view now growing in popularity that "built-in flexibility" can do the job alone and that deliberate countercyclical fiscal policy can be dispensed with. The computations of the value for (α), despite their roughness, show that even under optimistic assumptions as to yield flexibility, the automatic movement of tax yields can not offset the major portion of a decline in income and employment.[7] Moreover, it should be noted that "built-in flexibility" cuts two ways: If it is helpful in cushioning the downswing in a depression, it also serves to delay the return to a full-employment level of income.

Actually there is every prospect that the value for (Er_1) will decline in the post-transition period. The level of (r_1) will be determined largely by average budget needs over the cycle. These will tend to decline as a per cent of income, although remaining higher than the prewar average. It is unlikely that much can be done to offset the fall in (r_1) by raising (E) through qualitative changes in the tax structure or its composition. In fact it is probable that (E)

(after adjustment for changes in the composition of income payments since 1946, mainly the decline in tax-exempt military pay and certain transfer payments). At the personal income level of 197.2 billion dollars assumed for 1947, income tax liabilities would be very close to 21.5 billion dollars. Federal corporation income taxes under the levels of profits assumed for the two years would be 7.3 billion dollars and 10.4 billion dollars respectively. Other federal taxes (consisting of estate and gift taxes, excises and social security taxes) would increase from 10.7 billion dollars to 11.2 billion dollars. The total change in tax revenue is therefore estimated at 7.7 billion dollars, from 35.4 billion dollars to 43.1 billion dollars.

For measuring (E), "total income" should be defined as personal income plus corporate profits before tax (but after dividends which are already included in personal income) giving 220.0 billion dollars for 1947 and 192.7 billion dollars for 1946. On this basis, (E) for the present federal tax system works out to be 1.46. It may be noted that this estimate for (E) would not be too greatly affected by moderate errors in estimates of the level of tax yields under the assumed income conditions. An underestimate by as large an amount as 2 billion dollars (which is rather unlikely) would raise (E) to about 1.8.

[7] Changing levels of unemployment benefit are the major item of flexibility on the expenditure side of the budget. If these are taken into account and using present rates of benefit payments, the value for (d) might be raised by from 5 to 10 points. The results would thus not be changed greatly.

will be lowered somewhat as the tax system is modified to reduce the impact on "investment incentives."[8] The flexibility of the tax system might be increased if provision was made for automatic adjustments in tax *rates* with changes in income but this could hardly be called "built-in flexibility" in the usual sense of the term. Rather, it is a way of applying deliberate countercyclical adjustments in the rate of taxation and expenditures. Such adjustments must remain the primary reliance of fiscal policy when it appears (as it most certainly will) that the actual level of fluctuations passes tolerable limits.

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[8] Much will depend upon what happens to the corporation tax rate and the share of the corporate tax in total receipts. Reduction of the corporate share in taxes will reduce (E) but reduction in the corporate rate applicable to dividends only would reduce (E) less than an equivalent reduction in the present uniform rate on profits because of the greater stability of dividends in comparison with total profits.

The value for (E) will also be decreased if weight is shifted from the personal income tax to the estate tax and if present exemption levels are maintained while upper surtax bracket rates are reduced faster than lower bracket rates. In the other direction, decreased reliance on excises would tend to raise (E) somewhat. To the extent that the various adjustments described are successful in raising the average level of investment and hence income over the cycle, this will tend to compensate for decreased flexibility as well as lessen the need for deliberate countercyclical adjustment.

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Hansen and Fellner on Full Employment Policies

Professor William Fellner, in a review of Professor Hansen's *Economic Policy and Full Employment,* quoted two statements and added the comment: "If these statements, taken in combination, are regarded as the basic thesis of the book, the number of dissenters will be small among professional economists." The statements referred to five economic policies needed for economic stability and continuing full employment, namely, a flexible program of public works, a comprehensive system of social security, a variable income tax rate, a balanced price and wage structure, and a reasonable degree of mobility and flexibility.[1]

I wish to place myself among the dissenters from the thesis of Professor Hansen's book. This dissent is not a disagreement regarding the desirability of the policies stressed by Professor Hansen; but is a belief, which I hope to support adequately, that in practice the most crucial aspect of policy necessary for continuing full employment is a factor to which Hansen gives minor attention and which Fellner does not mention in his review. Both economic theory and recorded experience provide the staunchest kind of support for the proposition that the prime requisite for continuous full employment, in a money-using private enterprise economy, is a reasonable rate of growth in

[1] *Journal of Political Economy,* June, 1947, p. 254.

the nation's money.[2] Professors Hansen and Fellner have both failed to recognize the strength and potency of monetary policy in producing depression and large-scale unemployment, and in setting the stage for maintenance of prosperity and full employment.

For more than a century, prior to the past two decades, the dominant strain in business-fluctuation theory attributed the occurrence of depression to the effects of monetary contraction, namely, shrinkage in expenditures for the products of industry and agriculture, the consequent reduction in the level of prices at which the output of the economy could be sold, the squeezing of profit margins because of the stickiness of costs, and the consequent disturbance to business prospects and plans. Insufficient growth of the circulating medium, in a country with a growing population and advancing techniques of production, was also believed to produce the same result. This view of the primary cause of depression and of the role of monetary policy in the maintenance of full employment was consistently and continuously held by leading writers on monetary theory and business fluctuations from David Hume to Herbert J. Davenport.[3]

Modern business-fluctuation theory does not contradict the basic tenets of this traditional theory of the origin of depression; both contain the assumption that the logical consequence of monetary contraction is depression and unemployment. Nevertheless, there is a sharp cleavage between Hansen's diagnosis of the origin of depression and that of traditional theory; and this cleavage is the reason for Hansen's insufficient attention to the problem of monetary control. The conflict between the two theories relates to the causal role and significance of change in holdings of "idle money," or rapidity of circulation of money.[4] But even here there is one important element of agreement. Both theories acknowledge, as an observed fact, that the velocity of money is low during a depression. The disagreement concerns the when and why of the fall in velocity.

Traditional business-fluctuation theory assumed that the fall in monetary

[2] The terms "full employment" and "money" are used in accordance with Hansen's definitions (*Economic Policy and Full Employment* [New York, 1947], pp. 19, 324.)—the former with the customary reservation regarding frictional unemployment, and the latter to mean "holdings of deposits and currency by the public."

[3] One of the most detailed statements of this thesis was given in the *Report of the United States Monetary Commission*, 1877, pp. 49-59 and 117-24. However, the Commission gave insufficient consideration to the position of bank deposits in the nation's money supply. Determination of a reasonable rate of increase in the quantity of money was recognized to be an unsolved problem, with opinions regarding the most suitable rate ranging from an increase proportional to population to that in proportion to the "needs of trade," with a connotation of physical volume and an implied recognition of increasing productive capacity. Changes in customs affecting the typical rate of circulation of money, such as the periodicity of wage payments, were also understood to be a factor in the needed quantity of money.

[4] It is not necessary here to enter into the technical problems of precise definition and method of measurement of idle money (liquidity-preference in Keynesian terminology). However, it may be noted that the only available measures of change in idle money are ratios of the amount of money held or in existence to amounts spent, and that such ratios are *per se* reciprocals of companion measures of the rate of circulation or velocity of money.

velocity associated with depression is sequential to contraction, or lack of sufficient growth, of the quantity of money. That is, the accumulation of idle money was understood to be an accentuating force, but not an independent or originating factor, in depression. Hansen's hypothesis, in contrast, assumes that reduced velocity of money (hoarding or increase of idle money) represents an independent causal influence in the down-swing phase of a depression, with irregularities in investment opportunities or temporary saturation of investment deemed to be the force operating to reduce velocity. A corollary of this view, to which Hansen subscribes, is that the monetary contraction which occurs in a depression is a sequel, through repayment of debt to banks, to idle money.

This difference between the two theories is of a character that can be tested by factual data. A depression involves *per se* a reduction in aggregate expenditure for the output of the economy. As Hansen indicates (p. 187), if the MV of today is lower than the MV of yesterday, there must have been a decrease in M or V or both. Under traditional theory, M decreases in the early stage of the down-swing, followed by a decrease in V. Under Hansen's hypothesis, V decreases in the early stage of the down-swing, followed by a decrease in M. V, it should be noted, designates the rate of use of money in connection with purchase of the current output of the economy. If we understand by MV total expenditure for the products of industry (consumers' goods and services and capital goods), we must understand by V the kind of monetary velocity commonly designated circuit velocity. The time-sequences of changes in the quantity and circuit velocity of money—particularly in the early part of business down-swings—are by far the most pertinent factual data available for judging the practical importance of the two explanations of the recurrent collapses of prosperity in our economic history. Has monetary contraction, absolutely or relative to a reasonable rate of growth, been a condition precedent to or simultaneous with the beginning of the down-swing phase of depressions, or has such contraction lagged behind that phase? Has reduced circuit velocity of money preceded or followed monetary contraction?

One of the most anomalous features of contemporary economic thought is the extent to which economists have discarded traditional theory of the origin of depression in favor of the type of explanation offered by Hansen without scrutiny of the facts regarding the foregoing sequences. It is true, of course, that the data are not sufficiently complete or accurate to reach definite conclusions with respect to all depressions in our history. I would like, however, to issue to Professor Hansen and to Professor Fellner, and to any other economist who wishes to engage in the hunt, the three challenges listed below. All three refer to the business cycle peaks and succeeding down-swings recognized by the National Bureau of Economic Research, using their standard reference dates for the period since 1857, and their business annals for the period prior to that date.[5]

[5] Arthur F. Burns and Wesley C. Mitchell, *Measuring Business Cycles* (Nat. Bur. of Economic Research, 1946), p. 78; and Willard L. Thorp, *Business Annals* (Nat. Bur. of Economic Research, 1926), pp. 113-26.

1. To cite a single case, with supporting factual data, which was not preceded by or simultaneous with monetary contraction relative to a reasonable rate of growth;

2. To cite a single case in which the monetary contraction associated with the down-swing was not itself sequential to (*i.e.*, preceded by) specific forces—such as central bank action, other government policies, or gold movements—which exercised a contractive influence on the effective quantity of bank reserves and the volume of bank credit outstanding or a direct contractive action on another important form of circulating medium;

3. To cite a single case, with supporting factual data, in which "idle money," as indicated by a decline in circuit velocity relative to secular trend, preceded monetary contraction at the peak or in the early stage of the down-swing phase of the cycle.

The form in which I have stated this challenge is not a prejudgment of the results of a thorough search. My own superficial glance at readily available data for the period between the close of the Civil War and that of World War I suggests that a few cases may be found where the peak in business and the early part of the down-swing preceded monetary contraction. My purpose is two-fold. First, I wish to impress upon Professors Hansen and Fellner and other economists who believe absence of sufficient investment opportunities to absorb customary savings to be the cause of lack of full employment the necessity of presenting reasonably convincing evidence that in at least one case in American history that situation, rather than malfunctioning of the nation's monetary mechanism, has led the course of events in a transition from prosperity to depression. Second, I hope to stimulate analyses of factual data regarding: (a) the components on the monetary side—quantity of money and its circuit velocity—of the shrinkage of aggregate expenditure for the output of the economy which constitutes a slump from prosperity to depression; and (b) the relation of monetary policy to changes in the quantity of money, and the timing of changes in monetary policy in relation to lapses from full employment.

Professor Hansen refers to conditions in 1929 and subsequent years in support of his hypothesis that lack of investment opportunities, and in consequence, idle money, cause depression. He claims (pp. 220 and 225) that 1929 was a time of saturation of investment; and states (p. 224) that from 1934 to 1937 the money supply increased rapidly but that money was idle and velocity low. He does not, however, provide data comparing the magnitudes and changes in M and V during this period with those preceding 1929, when a condition approximating full employment, with a moderately stable level of prices, was maintained for several years.

Nevertheless, Professor Hansen does give us the basis for estimating a reasonable rate of growth in the quantity of money, with which rates of change prior and subsequent to 1929 can be compared. He believes that the gains of increasing productivity should be taken in the form of higher wages and incomes, with a stable price level (pp. 241-42). This means, except for the contingency of a trend in circuit velocity of money, a rate of growth in

M equivalent to that in productive capacity. But as Hansen also notes (pp. 216 and 326), the circuit velocity of money has a downward secular trend, or, as he puts it, the public holds more money than formerly relative to income. This trend must be added to the rate of increase in productive capacity to obtain the rate of growth in money necessary for continued sale of the full output of the economy at stable prices. Our productive capacity, according to Hansen, is now 75 per cent or more above that of 1929 (p. 45); which is an annual rate of increase of about 3½ per cent per year (assuming "now" to be based on data for 1946). This is close to the average rate of increase in productive capacity for the half-century prior to 1929, judged from indexes of production. The downward trend in velocity, according to the data extending over a century used by Hansen, is more than 2 per cent per year. Thus, according to Hansen's reasoning and data, the rate of growth in the quantity of money needed for economic stability and full employment is about 5½ per cent per year.[6]

With this rate in mind, let us look at the pertinent data for three periods—the prosperous middle 1920's, 1928 and the next four years, and 1933 to 1937. During the first of these periods the quantity of money increased at approximately 5 per cent per year (though the rate ranged from 1 to 9 per cent), the circuit velocity of money did not deviate greatly from its secular trend, the price level was comparatively stable, and except for mild recessions in 1924 and 1927 the nation enjoyed "full employment." At the second quarter of 1928, the growth in the quantity of money was abruptly stopped. For the next two years the quantity of money drifted downward (with some irregularities) with circuit velocity remaining at or above normal as indicated by the trend. Not until the middle of 1930—when the quantity of money had fallen nearly 15 per cent below trend—did circuit velocity drop below its trend. "Idle" money was a sequel, not a prelude, to the lapse from full employment. However, the more drastic monetary contraction from 1930 to 1933, to which Professor Hansen refers (p. 224), was accompanied by a sharply reduced velocity.[7]

There is also excellent evidence that the decline in investment followed rather than led the break in prosperity and full employment, though as the depression deepened the slump was greatest in the construction and durable goods industries. Domestic corporate security issues for productive uses, according to Moody's estimates, were larger in 1930 than in any of the preceding five years. Construction contracts for non-residential buildings were

[6] This rate is probably a little too high; the downward trend in velocity in recent decades has been about 1½ per cent per year (see my article, "Quantity and Frequency of Use of Money in the United States, 1919-45," *Jour. Pol. Econ.* [Oct., 1946], pp. 436-50). Professor Hansen's data and that which I have used both refer to currency plus deposits, including time deposits and excluding interbank and United States government deposits.

[7] Professor Hansen reasons (p. 224) that because of debt cancellation and monetary contraction, there was little idle money at the bottom of the depression. That was precisely the period of idle money, as measured by low circuit velocity. The reason for its occurrence, it seems obvious to me, was the attempt of individuals and enterprises to conserve their dwindling cash balances.

almost as large in the year following as in that preceding the peak of the cycle.[8] The break in value of contracts occurred about the middle of 1930—two years after the cessation of growth in the nation's money supply. Further, the assumption that investment opportunities were lacking and money was idle at the end of the 1920's is inconsistent with the behavior of interest rates. Corporate bond yields and average rates charged on customers' loans by banks in principal cities, which had been gradually falling throughout the middle 1920's, rose appreciably in the latter half of 1928 and in 1929. This timing suggests that the decline in investment was the result of a combination of reduced business prospects, consequent upon a falling price level, and abnormally high interest rates, with both of these consequent upon the stoppage of normal growth in the quantity of money. The lack of investment opportunity appears to have been the consequence, not the cause, of the depression.

Professor Hansen's distorted impression of events in 1928, 1929, and 1930 is also characteristic of his view of the period 1934-1937. That period was not, as he claims, a time of "vast" increase in the quantity of money. From the middle of 1933 to the peak in 1937 the average annual increase in quantity of money held by business and individuals was about 7 per cent—a little above normal, but at a rate which would have taken two decades to make up the loss of the preceding half-decade. But under the stimulus of this slightly-above-normal rate, the circuit velocity of money recovered all its depression deviation from trend. From the low in 1933 to the high in 1937 the quantity of money increased relative to trend by less than 10 per cent, circuit velocity by more than 30 per cent. In terms of contribution to recovery—that is, to stimulation of sales at more than a normal rate of growth—the rising circuit velocity was more than three times as potent as the increase in the quantity of money.

Nor can there be any doubt that the stoppage of growth in the quantity of money in 1928, the subsequent contraction, and the recovery from 1933 to 1937 were all sequential to central bank or other policies impinging on the quantity of bank reserves.[9] Of this, Hansen appears unaware, though he understands the essential character of the problem. He recognizes the importance of maintaining the money supply, and that banks therefore "must not *en masse* unload securities" (p. 227). He ignores the combination of central bank policies which led to unloading in the early 1930's—the development

[8] The peak of the cycle is placed by the National Bureau of Economic Research at June, 1929, Burns and Mitchell, *op. cit.*, p. 78. During the four years preceding the middle of 1929, construction contracts for non-residential buildings, as reported by Dodge, were approximately stable at an average of $2.4 billion per year. In 1929-30 they were $2.2 billion but in 1930-31 dropped to $1.3 billion. The serious slump in residential building contracts also occurred subsequent to the peak of the boom but more quickly than non-residential building.

[9] For the policies which resulted in shrinkage of reserves from 1928 to 1933 see the annual reports of the Federal Reserve Board, particularly that for 1928, pp. 4-6, and for 1929, pp. 2-4, and the review of these policies by Dr. E. A. Goldenweiser in the *American Economic Review*, June, 1947, pp. 324-25.

of a tradition against continuous borrowing from the central bank, reinforcement of this tradition by "direct pressure," and lack of use of other central bank powers to maintain the volume of bank reserves.

As a final comment in this dissent I would like to refer to the concluding part of Professor Fellner's review in which he expresses his own belief in the great value of compensatory fiscal policy as an anti-depression technique and states that its possibilities are seriously underestimated if not disregarded. This remedy for periods of severe unemployment has been popular with economists in recent years; but has been proposed without a reasonable scrutiny of the factual evidence respecting the conditions precedent to serious lapses from full employment in the past. Such examination of the relevant data as I have been able to make leads to the conclusion, in line with traditional theory, that the most vital condition for maintenance of a high level of employment and output is a reasonable rate of growth in the nation's money instead of the erraticism which has plagued us throughout the history of our nation. A compensatory fiscal policy, carried out in a manner producing appropriate effects on the quantity of money, may be an antidote to a dose of improper monetary policy; but with proper monetary policy exercised through ordinary central bank operations, an antidote will not be required.

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Public Works in the Depression

The government's role as direct provider of jobs, especially during depressions, has often been exaggerated both by those who favor and by those who oppose any strengthening of this role. Over the two decades of the 'twenties and the 'thirties, on the average less than 15 per cent of all goods and services produced were bought by government. Nor did government expenditures on goods and services prove as readily expansible in the depression as some theories of economic stabilization would lead us to expect. The data presented below do not support the view that expansion in public works and in government employment can be expected of itself to "take up the slack" in the event of severe declines in normal private employment and production.

The impression is widespread that there was a considerable expansion of public works during the last depression. Strangely enough there is no support for this assumption in the facts. Rather, if all public construction programs are included, even those based on work relief, there appears to have been a sizable *decline* in public works expenditures. This decline was offset, but not much more, by the non-construction work relief programs undertaken outside of the regular public works field.

These conclusions are based on the data presented in Table I. It will be observed that from 1931 to 1938 inclusive, regular public works (public

TABLE I.—PUBLIC AND PRIVATE CONSTRUCTION, WORK RELIEF, GOVERNMENT EXPENDITURES FOR GOODS AND SERVICES, AND PRIVATE INVESTMENT, 1929–1938.

(In billions of dollars)

	Regular Public Construction (New Construction[a] plus Maintenance[b])	Work Relief Construction[c]	Total Work Relief Wages[d]	New Private Construction[a]	Total Government Expenditures for Goods and Services[e]	Private Investment (Gross Capital Formation[e])
1929	3.227[f]	—	—	8.587	11.0	17.6
1930	3.648[f]	—	—	5.902	11.2	12.1
1931	3.353[f]	—	.059	3.944	11.5	6.4
1932	2.418	—	.132	1.861	10.2	2.2
1933	1.743	.114	.656	1.383	9.1	3.3
1934	2.085	.578	1.387	1.775	10.8	5.3
1935	2.089	.431	1.329	2.282	11.9	6.7
1936	2.884	1.290	2.155	3.194	12.6	10.0
1937	2.756	.895	1.639	4.135	13.6	11.6
1938	2.812	1.337	2.094	3.608	14.4	7.7
1931–38 average level.....	2.517	.580	1.181	2.785	11.7	6.25
Increase: 1931–38 level minus 1930 level.....	.....	.....	.....	.....	.5	
Decline: 1930 level minus 1931–38 level.....	1.131					
Decline: 1929 level minus 1931–38 level.....	.....	.....	.....	5.802	.....	11.35

Sources: Bureau of Labor Statistics, U. S. Department of Labor, and Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce.

[a] New public construction and new private construction, from Bureau of Labor Statistics (LS-45-3878), July 1, 1945.

[b] Maintenance from *Survey of Current Business*, August, 1939, p. 11.

[c] Work relief construction from Bureau of Foreign and Domestic Commerce, Department of Commerce, *Survey of Current Business*, August, 1939, p. 13, Table 7.

[d] Work relief wages from *Survey of Current Business*, April, 1944, p. 15, Table 15, line 7.

[e] Government expenditures, and private investment, from "Basic Facts on Employment and Production," Senate Committee Print No. 4, Banking and Currency Committee, September 1, 1945, Table E4, p. 12.

[f] Total public construction for 1929, 1930 and 1931, from *Construction Activity in the United States, 1915–37*, Department of Commerce, Bureau of Foreign and Domestic Commerce, p. 24.

expenditures on new construction and maintenance, but not work relief) averaged $1.130 billion a year *less* than the $3.648 billion level of public works expenditure reached in 1930. (The level achieved in 1930 was based in considerable part on 1929 appropriations.) Work relief construction amounted to only $580 million a year when averaged over this eight-year period and was, therefore, only half the size of the decline in regular public

TABLE II.—FEDERAL AND STATE AND LOCAL EXPENDITURES ON CONSTRUCTION 1930–38
(millions of dollars)

Year	Federal Construction				State and Local Construction		
	New	Maintenance	Work Relief	Total Federal Construction	New	Maintenance	Total State and Local
1930				360			3,288
1931			0	469			2,884
1932	460	43	0	503	1,334	581	1,915
1933	509	42	114	665	707	485	1,192
1934	665	46	578	1,289	794	553	1,347
1935	812	51	431	1,294	616	589	1,205
1936	1,273	56	1,290	2,619	881	654	1,535
1937	1,169	59	895	2,123	845	659	1,504
1938	1,068	62	1,337	2,467	1,089	674	1,763
Total			4,645	11,429			13,345
Average 1931–38			580	1,428			1,676

Total public construction in 1930	3,648
Total public construction in 1931–38	24,774
Ratio of federal to total public construction in 1930	10 per cent
Ratio of federal to total public construction 1931–38	58 per cent
Increase of federal construction, 1930 to 1931–38 average	398 per cent
Decrease of State and local public construction, 1930 to 1931–38 average	50 per cent

Source: Bureau of Foreign and Domestic Commerce, *Survey of Current Business*, August, 1939, p. 11.

construction. Total wages paid on *all* types of work relief, including non-construction projects such as the Works Project Administration art and research projects, averaged only $1.181 billion a year during these years. Even if we raise this by a substantial fraction to allow for work relief expenditures other than wages and salaries,[1] the total will not be so very much larger than the decline of $1.131 billion in the average expenditures on regular public construction.

[1] For example, it is estimated that wages and salaries amounted to only 79.3 per cent of all Civilian Works Administration expenditures. See Corrington Gill, "The Civil Works Administration," in *Municipal Year Book*, 1937, p. 419.

Work relief certainly made a negligible contribution toward offsetting the enormous decline in private construction. New private construction sank in the period 1931–38 to an average level $5.802 billion below the $8.587 billion level achieved in 1929. A further indication of the relatively small contribution of the work relief program may be provided by the fact that, despite all the talk of tremendously expanded government expenditures, the 1931–38 level of government expenditures for goods and services of all types (which includes work relief but not direct relief) rose only about a half a billion dollars, or 5 per cent, above the 1930 level. This additional half-billion dollars of government expenditure was dwarfed by the aforementioned $5.802 billion decline in the level of new private construction, not to mention the $11.35 billion decline in the level of total private investment, comparing the 1931–38 average with 1929.

If these are the facts, how did the misconception as to the great expansion of public works in the depression ever get started? Perhaps the most important factor here is the very great expansion in the share of public works *financed by the federal government.* This is shown in Table II. The average public works expenditures of state and local governments during the 1931–38 period fell off 50 per cent from the 1930 level. In order to fill even a part of this gap it was necessary for federal construction (including work relief construction) to expand nearly 400 per cent. Whereas federal construction had accounted for only 10 per cent of all public construction in 1930, it constituted about 58 per cent of all public construction in the period 1931–38.

This dramatic expansion of federal construction gave rise to many new problems. Much of the construction was necessarily of a new type. A good deal of it was in the form of work relief and raised difficult problems concerning relief standards and standards of efficient performance. Since no provision had been made for advance planning of worthy federal projects on so large a scale, hasty improvisation was often necessary. The distribution of the projects among the states and localities raised political questions, especially since it was desired to get as much decentralization and local coöperation as possible. Some of the individual projects like those connected with the Tennessee Valley Authority were of such vast size and unusual kind as to create an exaggerated popular idea of the ambitious character of the total public works program being undertaken. But the most important factor was probably that the program was being financed by federal funds, and hence was kept in the public eye. No such national attention was focussed on the considerably larger public works program in earlier years because its costs were scattered among 48 states and innumerable local government units.

One final factor that helps to account for the exaggerated idea of the size of the public works program undertaken during the depression is that during those years substantial deficits were incurred in the federal budget. It was hastily assumed by many persons that such deficits must have been incurred solely as a result of a very great expansion in the volume of public works. Actually, however, these deficits cannot be wholly explained without

reference on the one hand to the volume of federal non-construction expenditures required to support direct relief and general salvaging operations, and on the other hand to the decline in federal revenues despite the increases in tax rates. The need for additional relief, and the shrinkage of the tax base, would occur in any depression, and would be more rather than less acute if no federal efforts were made to offset declines in the public works activity of the State and local governments.

While the average volume of public works declined rather than increased during the depression years, the number of regular government workers did increase, but not nearly to the extent that many people suppose. The 1931-38 average of employment at all levels of government was only 400 thousand or 13 per cent, above the 1929 level.[2] This includes personnel administering relief and recovery programs as well as other government programs, but does not, of course, include non-administrative workers on public works and work relief programs referred to above.

The federal public works program actually undertaken in the depression was far too small to offset the decline in private expenditures. Parts of this program were, nevertheless, subjected to severe criticism—whether or not justified—for being competitive with private enterprises or for being unessential, and hence wasteful of public funds. A public works program substantially larger than the one undertaken in the depression would be even more exposed to this sort of criticism. Careful advance planning would help, but if the program were large enough, it could hardly be invulnerable in this respect. Moreover, the larger the program became the greater would be the difficulty experienced in starting and stopping it quickly enough to make a maximum contribution to economic stability.

From the postulate that public works cannot be counted upon to stabilize the economy some persons have drawn the pessimistic conclusion that government cannot properly assume any major obligation to aid in maintaining economic stability and high levels of employment. Our government has refused to accept this conclusion. By the terms of the "Employment Act of 1946," the federal government accepts the responsibility "to use all practicable means consistent with its needs and obligations and other essential considerations of national policy, with the assistance and cooperation of industry, agriculture, labor, and State and local governments, to coordinate and utilize all its plans, functions, and resources, for the purpose of creating and maintaining, in a manner calculated to foster and promote free competitive enterprise and the general welfare, conditions under which there will be afforded useful employment opportunities, including self-employment for those able, willing, and seeking to work, and to promote maximum employment, production, and purchasing power."

In discussing the policies needed to implement this obligation, the President in the first of the annual Economic Reports required by the act, cautioned against "an overemphasis upon the prospects of stabilizing our

[2] See "Public Employment and Pay Rolls in the United States, 1929–39," *Mo. Lab. Rev.* (Feb., 1945), Table I, p. 245.

whole economy through the bold use of public works."[2] Recognizing that "there are valid reasons why public works cannot accomplish as much toward stabilization as some have supposed,"[3] he did not conclude that government efforts to stabilize the economy would therefore be fruitless.

Instead, he called for the development of a wide variety of government policies in the fields of taxation, monopoly, debt management, social security, etc., designed to promote maximum employment, production and purchasing power. Such policies would seek to maintain the level of activity in *all* sectors of the economy including the consumer goods and private capital goods industries. Implicit in this approach is the recognition that by such measures the government may *indirectly create* many more jobs than it can *directly provide* on public works and government payrolls. By modifying the disposable incomes of individuals and businesses, and their willingness to spend these incomes, such measures may profoundly influence the volume of economic activity generated in the private sector—the major sector—of our economy.

Recognition of the limitations of public works as a general economic stabilizer need not, therefore, imply an abandonment of government responsibility for the maintenance of adequate employment opportunity and the promotion of maximum employment, production and purchasing power. Rather, such recognition is an indispensable preliminary to the development of a well-rounded and realistic program by which this responsibility may be effectively discharged.

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[2] *The Economic Report of the President to the Congress, January 8, 1947* (Washington, 1947)' p. 28.

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Balancing International Trade: A Comment on Professor Frisch's Paper

Professor Frisch's proposals[1] for a thorough study of balance of payments broken down by countries and by currencies will no doubt receive unqualified support; and his suggestion to do this by means of a *"trade matrix,"* or a double entry table seems highly practical. It is not to these proposals, but to the underlying theory and the conclusions on economic policy that are derived from it, that this comment is directed.

I

"Discrimination" on the part of an importing country means to change the import by a country, C, of a certain amount of commodities (say, x) from the country of earlier preference (A) to another country (B). Such a shift

[1] Ragnar Frisch, "On the Need for Forecasting a Multilateral Balance of Payments," this *Review*, Vol. XXXVII (Sept., 1947), pp. 535-51.

can induce an increase in world trade only if country B responds in a different way to a gain of x than A responds to a loss of x. The beneficial effect of discrimination implies, therefore, the assumption of *asymmetry* in the reactions of countries A and B in their responses to changes in exports. Specifically, Professor Frisch's asymmetry assumption is that a country which has an import surplus (defined in the widest sense, including invisible current items and certain capital items) and therefore loses reserves, will reduce imports, whereas a country which has an export surplus and therefore gains reserves will *not* increase its imports, but keep them at the same level. On that assumption, if country B is a deficit country and country A is a surplus country, each with a rate of deficit or surplus in excess of x, a shift of x in country C's imports from A to B will increase world trade: B will increase its imports if it has just cut them to wipe out the deficit; or it will not have to cut them as much if the shift of x comes in time.

Professor Frisch's assumptions are realistic for the present time. A large number of countries, short of foreign exchange, balance their imports by state control at the amount available from exports and other sources; any increase in exports enables them to import more, any decrease in exports forces them to import less. In the United States, on the other hand, the volume of imports is determined by private importers independently of the reserve position of the country; the total volume of imports is presumably still well below the level determined by national income and relative prices, and no change of exports (of moderate proportions) would influence the actual volume of imports. In these conditions, discrimination against imports from the United States will increase world trade.

But the principles of the I.T.O. are not conceived primarily with the transition period in view, and Professor Frisch does not argue his case for discrimination with reference to 1947 or 1948, but with reference to the 'thirties and the 'fifties. In those conditions, it cannot be argued that imports are primarily a function of changes in reserves, nor that the import function is asymmetrical. Statistical studies covering the 'twenties and 'thirties have shown clearly that imports depend primarily on national income, or other activity indexes, and relative prices.[2] Thus, in the Great Depression, all countries tended to reduce their imports in response to declines in their national income, both those who lost reserves and those who gained reserves. In some countries the market decline in demand for imports was reinforced by government policies of a restrictive character, not only to protect reserves but also often to protect domestic employment. Since exports are an important, and in many countries the most important, determinant of national income and thereby of imports,[3] discrimination in imports would affect the

[2] See, *e.g.*, T. C. Chang, "International Comparison of Demand for Imports," *Rev. Econ. Studies*, Vol. XIII (2), No. 34 (1945-46), where this relation is tested for 21 countries with good results in all cases.

[3] I may refer to my paper on "The Foreign Trade Multiplier," this *Review*, Vol. XXXVII, No. 5 (Dec., 1947), pp. 889-97, for the theoretical connection of exports and imports, in particular equation (13). Preliminary results of statistical investigations along

volume of world trade only to the extent that the relevant coefficients in countries *A* and *B* (multiplier and marginal propensity to import) were significantly different. This, of course, may be the case; but we know far too little about the magnitude of these coefficients to base any policy on differences between them. The correct statement that reserves may also affect imports when a minimum reserve level is reached cannot be generalized into the general and asymmetrical importance which Professor Frisch attributes to reserves. On this account one cannot forecast the future trade matrix, as Professor Frisch appears to indicate, from the present matrix.

There may be situations when the source of an unfavorable balance of a large number of countries lies in particular conditions making for a favorable balance in one or a few countries. This is the case envisaged in the "scarce currency" provision of Article VII of the Fund Agreement. This Article is intended to meet Professor Frisch's point in those rare post-transition cases where the general disequilibrium stands out clearly. Professor Frisch believes that the Fund's scarce currency provisions are inadequate, because they do not permit a country in restricting imports from a scarce currency country to discriminate at the same time among other countries. It is true, of course, that at the same time that the currencies of one or a few countries are scarce, other countries will have differences in degree in their overall balance-of-payments position. But in view of what was said in the preceding paragraph, it would not seem desirable to deal with such differences by selective discrimination and Professor Frisch's objection to the Fund's scarce currency provisions would not appear to be particularly valid in this respect.

II

The policy of selective discrimination in reduction of imports with a view to maximizing trade (or rather to minimizing the reduction in trade), as proposed by Professor Frisch, would impose great hardships on the importing countries. Under the proposal, deficit countries would have to eliminate not the imports they could do without, but imports from a specific source of supply. Forced to concentrate their reduction in imports on one or a few countries which happened to follow from the matrix, they would have to accept a commodity structure of imports which might be quite incompatible with full national output. Any practical application of Professor Frisch's proposals would have to be the result of considerable negotiation on a multilateral basis so as to harmonize his principle of the maximum volume of international trade with some reasonable degree of international division of labor. As set out earlier, it is not likely that such arrangements, if consummated, would be substantially beneficial to the total volume of international trade. Professor Frisch assumes that downward adjustments of the matrix according to the principles he proposes should be allowed to take place only after all possibilities for adjustment through increases had been exhausted. But if the application of the discriminatory reductions would in fact require multi-

these lines show satisfactory evidence of the realistic nature of the assumptions made in this paper.

lateral negotiation, it would appear that such negotiations might be used towards increasing world trade rather than towards allocating reductions in world trade. If serious disequilibria in international trade and payments were dealt with, not by the necessary fundamental adjustments, but by successive doses of discrimination, the "specialization" advantages of the remaining international trade would continually decline and the volume of international trade would lose all value as an indicator of international welfare.

III

If it is impracticable and of limited use to arrange a multilateral system for reducing the impact of import restrictions, it may yet be useful to *permit* countries, rather than to *compel* them, to take such measures *inter se* to eliminate some of the effects to which Professor Frisch alludes. It would seem reasonable in particular to permit any two countries, both of which are obliged to reduce imports in general on account of balance-of-payments difficulties, not to apply import restrictions against each other. At the present time, trade in Europe is much larger than it would have been had all countries in that area applied also to each other in the same degree the general restrictive import policies which their foreign exchange position forces them to adopt *vis-a-vis* the rest of the world. With respect to such a situation Professor Frisch's point would seem to be particularly well taken.

It would appear, however, that such policies are permitted by the I.T.O. Charter.[4] Article 28 (e) states that the provisions of non-discrimination of Article 27 do not preclude "restrictions in accordance with Article 26 [to safeguard the balance of payments] which both (i) provide a member with additional imports above the maximum total of imports which it could afford . . . if those restrictions were consistent with Article 27, and (ii) . . . are permitted to that member under the Articles of Agreement of the International Monetary Fund. . . ." Thus discriminatory exceptions to import restrictions with the clear purpose of increasing international trade appear to be permitted under the I.T.O. Charter.

J. J. POLAK*

[4] References are to the New York draft of the I.T.O. Charter. The subsequent Geneva draft further liberalizes the exceptions to the non-discrimination principle (Article 23 of the Geneva draft, replacing Article 28 of the New York draft).

* The author is an official of the International Monetary Fund; the opinions expressed in this paper are, however, his own.

Fellowships in Industry

Many business organizations have indicated their belief in the need for competent economic advice by adding to their staffs men trained in economics. For some time now banks, insurance companies and other financial institutions have made a practice of hiring economists with special knowledge or capacity to analyze the money market, the monetary and banking system, factors influencing the rate of interest, investment prospects and related problems. In trade and manufacturing companies, economists have been given

responsibility for forecasting, market research and some aspects of labor and public relations. New and old business associations and groups have established economic research divisions directed mainly toward the analysis of governmental policies.

For whatever reasons, the problems of the businessman are now being expanded into another area where the economist is needed—arising out of the attempt to make the operations of the individual company contribute the most to the achievement of national economic objectives (however defined). Previous standards of measurement and conceptions about the power of the firm to contribute are being revised. It is not an uncommon thing now for prominent businessmen to refer to the responsibility of management for doing something about the achievement of such national economic objectives as higher and more stable levels of production and employment or freer world trade. The need for shouldering some of the responsibility has been based on an awareness of the long-run dependence of the firm on the working of the system as a whole. The work of the Committee on Economic Policy of the United States Chamber of Commerce—particularly its reports "A Program For Sustaining Employment" and "Business Management and Economic Analysis"—and the work of the Committee For Economic Development may be cited as evidence of these developments.

The full possibilities of individual firm action contributing directly and consciously to the achievement of accepted national economic objectives are, of course, yet to be determined. As the efforts to work out private company programs develop, it will require the assistance of economists in numbers larger than are now devoting their attention to this field. Such assistance need not be full time and should encompass the individual efforts of many companies and many economists.

In addition to the need among business units for the services of economists, at the same time there exists a need among most general economists for more first-hand knowledge about business operations and problems. The wartime experience in governmental agencies indicated how wide a gap had developed between businessmen and economists. Some of this lack of understanding was on the economist's side, and his lack of previous personal contact with individual firm operations influenced his language, his judgment and his factual knowledge.

It seems wholly unnecessary to do more than point out the central position of the firm in economics and the importance to an economist of knowledge about the workings of business. Such knowledge is significant for economists employed by schools, government, labor or research groups. Although it is imperative to maintain scientific impartiality and although it is obvious that people with an "outside" point of view are needed, it seems beyond question that it would be a good thing if more economists had an opportunity to supplement their present training with a period of training in some individual business concern.

As things stand at the moment, most economists go from graduate school to the classroom or to some research organization or to a government job. There is some movement back and forth between these groups. However,

business, one of the major interests of economists, has been an aloft citadel to be learned about second-hand or by deduction. To be sure, some economists are consultants or have business jobs on the side, and some economists in business have part-time teaching jobs—but for the most part the two worlds are divided. This condition has been due largely to a lack of opportunity for economists to study the operations of the firm.

If this analysis is valid—if there is a mutual need for a greater exchange of experience and counsel between economists and business management—a program of Fellowships in Industry for economists seems desirable.

These fellowships might take either one or both of two forms. They might, in the first place, be training courses or programs set up by particular companies. In this case, the fellow would move about in various jobs in the organization and so learn of its operations and problems. They might, in the second place, take the form of a research project. That is, the applicant for the fellowship would submit a project for study and a company would be found which would have available data for carrying out the project. There are many details and policy problems to be worked out in administering such a program—for example, the methods and standards for selecting fellows must be determined, the freedom of the fellow to report his findings must be assured and contacts with top management must be provided—but there is little doubt these and other problems could be overcome.

The conceivable benefits from a Fellowships in Industry program would appear to be considerable. The governmental economist would have, both from his own experience as a fellow and from the experience and writings of other industry fellows, knowledge and first-hand familiarity with the working of business. This would be invaluable in the administration and analysis of existing governmental programs designed to achieve some particular business control or induce some specific business action.

The teacher of economics and the research economist would clearly benefit from the personal experience and literature which would grow out of the fellowship program. Since the operation of the firm is a central factor in the economic system, economists in both research and teaching should find greater knowledge of the firm helpful in adding more realism and usefulness to their work, and in eliminating some of the plethora of *a priori* speculation. Emphasis should be placed on the possibility that this greater knowledge would result in a reworking and carrying forward of the theory of the individual firm.

The public generally would benefit from anything which reduces the friction and lack of understanding and trust between economists and businessmen. They would benefit, also, from the development and adoption of ways of achieving both relative stability and continued economic progress within the framework of a society characterized by personal freedom. Individual firm action toward that objective is an area holding much undeveloped promise and little hidden danger. In view of the historical alternatives, everyone would benefit from whatever aid individual firm action might bring to the achievement of national economic objectives.

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BOOK REVIEWS

Economic Theory; General Works

The Keynesian Revolution. By LAWRENCE R. KLEIN. (New York: Macmillan. 1947. Pp. xii, 218. $3.50.)

What is a Keynesian? Does the term merely mean any economist who uses all or most of the Keynesian analysis as a convenient means of organizing economic data;[1] or shall we confine it to those who follow a certain "party line" on policy—roughly, Henry Wallace, Lord Beveridge and further left? Apparently Dr. Klein favors the second definition. Yet on the basis of that definition the careful reader will be forced to the paradoxical conclusion that Klein's book could be treated as a rather strong piece of "anti-Keynesian" literature. That is to say, the policy approach which he regards as the index of true Keynesianism is by no means necessarily to be derived from the analysis which he presents. Only if we accept certain highly controversial factual assumptions which Klein very briefly mentions and nowhere argues, do his policy results follow.[2]

In a nutshell, Klein reluctantly concedes that: (1) Keynesian employment *equilibrium* depends on wage rigidity (p. 90);[3] (2) the loanable fund and liquidity preference theories can be reconciled (p. 121 *et seq.*); (3) investment does not always depend on the consumption, or the income level (p. 37). The writer would be the last to maintain that even with such concessions the Keynesian schema cannot be used both as a valuable guide to policy and a useful method of approaching economic problems.[4] But it is certain that they negative once and for all many of the sweeping Keynesian claims (including numerous statements made by Klein in this book) concerning the scope and generality of the *General Theory*.

The organization of Dr. Klein's volume is interesting and thorough. Chapters on the earlier Keynes and the development of the *General Theory* are followed by a "building block" explanation of the elements of the Keynesian analysis. Next comes an account of the impact of the *General Theory* upon various reviewers, followed by a treatment of "anticipations" of Keynes, including Malthus, Marx and others. We are then given an exercise in the

[1] If so, the writer is a Keynesian. Under the second definition, he is not.

[2] Dr. Klein is extremely sparing with references and there are a large number of vitally important statements for which no authority is given. For example, "Statistical investigations reveal a very strong negative correlation between investment activity and the stock of capital," p. 69. But we are not told what investigations these are, and since Klein's text contains a number of mistakes, we cannot rely upon bare assertion alone.

[3] But he does not feel (see below) that wage reduction will always cure unemployment.

[4] See D. McC. Wright, "Future of Keynesian Economics," *Am. Econ. Rev.* Vol. XXXV, No. 3 (June, 1945), p. 284. It may be of interest that the writer has personal letters from Lord Keynes approving its general argument.

application of Keynesian analysis to inflation and war finance, and the text concludes with a chapter on "Keynes and Social Reform." There is, in addition, a lengthy and elegant mathematical appendix.

Reading the book has been for this reviewer a stimulating but not wholly satisfying experience. Dr. Klein does good work in explaining certain latent ambiguities in the Keynesian system, notably in connection with the "equation" of savings and investment as (1) "observables"—when the matter is a tautology—and as (2) "schedules," when it is not (pp. 110 *et seq.*).[5] He also makes some illuminating observations regarding the difference between "stock" and "flow" analysis in interest theory (pp. 122-23). Generally speaking, however, the book does not fulfill its promise. The first impression is one of competent technical manipulation of a few narrow ideas, but more careful reading will show that if the ideas are not so narrow, neither is the manipulation so accurate as at first appears. Dr. Klein is as careless in the literary formulation of his demonstrations as he is careful with his equations. The style is equally slipshod and dogmatic, and the fact that a specialist can spot most of the mistakes, does not make the book any the less misleading to the general reader. One must not conclude, however, that Klein's book is unimportant. On the contrary, it is extremely valuable. For here are gathered together in convenient form most of the extravagances to which the Keynesian outlook can be pushed. In effect, Klein would like to substitute for the "classical" doctrine that effective demand is *always* sufficient in a free-exchange economy, an equally erroneous dogma that it is never likely to be.[6] He stands to Keynes in much the relation that Harriet Martineau does to Ricardo.

Postponing specific errors for later treatment, let us consider the basic argument of the book. Its fundamental ambiguity lies in a shifting and vague attitude toward investment "outlets." Sometimes they are envisaged as a "smooth curve" uniquely related to income (consumption) levels and the stock of capital (pp. 110, 68, 69).[7] At other times the determinants are supposed to be "autonomous"—"outside" the pricing system (p. 76). But few in-between cases are considered and in almost no instance, despite the frequent autonomous examples, does Klein consider the consequences of a *favorable* autonomous shift. Even in one of the few cases in which logic absolutely forces him to consider the point, he introduces an unnecessary countervailing factor: "In order to make an unequivocal argument in favor of wage cuts, it will be necessary to show that there would be an upward shift of the investment schedule *and* a downward shift of the saving schedule" (p. 109. Italics supplied.). Why is this? A downward shift of the savings schedule would undoubtedly help, but if there is a sufficient rise in the investment schedule, that alone could certainly be sufficient.

[5] But Klein does not notice that the schedules *themselves* may be tautologies.

[6] Note that I say "would *like* to substitute." To the honor of Dr. Klein's scientific conscience it must be remembered that he does make a number of countervailing concessions. I am referring to the general policy drift.

[7] The rate of interest seems considered a virtually negligible influence (pp. 64-67).

It is not necessary to discuss in detail Klein's first idea of the investment schedule as a smooth curve uniquely related to income, consumption, and the stock of capital. This, of course, is the assumption most convenient to "Keynesians," in Klein's sense of the word, and perhaps explains his qualification regarding the need for a downward shift of the savings schedule. But in basing pessimistic estimates on this point plus a literal application of Keynes's normal psychological law, Dr. Klein has not even kept up with Professor Samuelson. Nowhere does one find reference to the Samuelson-Hansen distinction between the long- and short-run propensity to consume, or the possibility of spontaneous upward shifts in the consumption schedule.[8]

Still more important and interesting, however, for the value of his predictions, is the case of autonomous investment—that is, investment determined "outside" the pricing system. The qualification "outside" is the weasel word. By taking two extreme hypotheses, Klein has managed to avoid consideration of nearly all the most important range of cases. Whenever he gets near the real problem he wraps it up neatly and ships it to the sociologists.[9] A tone of consistent dogmatism may thus be maintained because semantic sleight-of-hand has eliminated nearly all inconvenient considerations.

But what, after all, *is* "outside" the pricing system? Future prices are "in" it when Klein discusses budget behavior (p. 58). Apparently, however, when we consider the effect of wage reductions, expected wage-cost trends are not (p. 108). Yet Klein says: "If we accept the formulation of the natural rate as the ratio of the *anticipated* net returns on new investment to the cost of that investment, then we should naturally attempt to develop a theory of what determines the size of this rate" (p. 52. Italics supplied.). We should indeed. But Klein does not—other than a few vague references to innovation—apparently because such questions are "non-economic."[10] If so, economics is a rather useless and fragmentary field of study, and "economic" or not, the questions dismissed are certainly not unimportant. Suppose we follow Keynes instead and assume that wage cuts by producing "an optimistic tone in the minds of entrepreneurs . . . may break through a vicious circle of unduly pessimistic estimates."[11] Suppose the estimates concern "autonomous" investment. Could not such a combination of circumstances produce full employment?

It is true that the writer follows Pigou and Klein in thinking that, if we consider institutional stability, or a policy deliberately planned to offset the effect of wage reduction, then wage cuts might not have the desired result.[12]

[8] Paul A. Samuelson, "Full Employment After the War," in Harris, ed., *Postwar Economic Problems* (New York, McGraw-Hill, 1943). Klein seems aware of the distinction in some of his articles but it is not developed in this book.

[9] For example, pp. 69, 90, 108.

[10] For example, pp. 64, 108.

[11] J. M. Keynes, *The General Theory of Employment, Interest, and Money* (London, Harcourt-Brace, 1936) p. 264.

[12] Professor Pigou's concessions in *Lapses From Full Employment* (London, Macmillan, 1947), Chap. V, amount to saying that if a bank policy exactly planned to neutralize the

Klein says (in explaining that Keynesian equilibrium depends on rigidity) that within the framework of Keynesian economics "wage flexibility . . . leads merely to [eternal?] hyper-deflation" (p. 90). But such well-known Keynesians as Professor Samuelson admit that zero or negative wages could give full employment. Obviously "hyper" deflation will eventually result in zero or negative real and money wages. Where does one stop? Wage reduction may not be the best method or even a desirable method. So much Pigou (and the present writer) would admit. But formally at the least it is undeniably *a* method.

One should not infer, however, that the weaknesses of Klein's argument are merely formal or hypothetical. Sometimes they are very real. Klein's discussion of the "earlier Keynes" and the birth of the *General Theory* centers around the British return to gold in 1925, and here, following the folk history manufactured in the 1930's, Lord Keynes is spoken of as an unequivocal opponent of wage reduction, and as the shining prophet of an inevitable disaster. But after reading Dr. Dudley Dillard's essay on the "Pragmatic Basis of Keynes" and re-reading Keynes's "Essays in Persuasion," I am not at all sure that either of these views is correct.[13]

The present writer, it should be made clear, does not believe in the gold standard. He believes in relatively stable exchange rates, which is quite something else. The question which concerns us here, however, is whether Keynes was necessarily right in prefering a low value for the pound to lower money wages *under the conditions* which then faced England. As far as the writer is concerned, the British mistake of 1926 and following years seems not so much a failure of monetary analysis as a failure of labor relations. As one looks at England now (1947), the concern of the British bankers and economists of 1925 over maintaining England's position as clearing house for the world makes a great deal more sense than it might have appeared to do then. Banking constituted a valuable part of the services by which England had hitherto persuaded others to give her the real wealth required for a high standard of living and was in any event part of an almost indispensable structure of international business "good-will." As cannot be stressed too often, the English are not even able to eat or live if deprived of foreign contributions.

After the world crisis of 1930, of course, wage reductions would probably have been, as Pigou puts it, "a mop to stay the seas," and the emergency devaluation of the 1930's has special elements to justify it. But all this was not the case in 1925 and we must look at the case as it stood then. Everybody admits that the basic problem was that British money wage rates were too high relative to competing nations. Yet, on the other hand,

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effect of wage cuts is followed, the cuts would not help. But this concession does not avoid the *zero* or *negative* argument. See my "Future of Keynesian Economics," *Am. Econ. Rev.*, June 1, 1945.

[13] Dudley Dillard, "The Pragmatic Basis of Keynes's Political Economy," *Jour. Econ. Hist.* (Nov., 1946), p. 133. J. M. Keynes, *Essays in Persuasion* (London, Harcourt-Brace, 1932).

she was anxious to retain her banking business, which Dillard points out was shifting to New York. But this, as Dillard puts it, she could not do as long as foreigners were uncertain as to the fate of their British balances. The choice then lay among three alternatives: (1) to increase efficiency; (2) to lower money wages; (3) to devalue. Klein rather naïvely remarks that "of course" Keynes ruled out money wage cuts because they would have led to deflation (p. 12). Short-run deflation would certainly have followed. But the elasticity of demand for British exports does not seem to me to have been uniquely related to the money level of British home consumption. Considering the importance of foreign trade to England—an importance almost wholly overlooked by Klein—I cannot now feel that those economists were necessarily mistaken who wished to take the first two policies.

Both on the merits and regarding Keynes's actual attitude, it seems to me Klein over-simplifies. Would not the best approach have been to call in the union heads and try to get their support to a program of general reduction? Indeed, in "The Economic Consequences of Mr. Churchill," reprinted in the *Essays in Persuasion,* Keynes suggested exactly that, though I interpret his preference, even there, as clearly for exchange-rate adjustment. Dr. Klein seems never to have heard of the wage and cost reduction experiments of the Labor government of Australia and their relatively favorable results. Perhaps the unions would never have consented, perhaps the deadlock was hopeless—with all parties half right, and all wrong. But Keynes's insular attitude certainly did not help, and, barring the tentative suggestion in the "Churchill" essay, I cannot see that he was any nearer a complete solution than anyone else. There is nothing in Keynesian theory to prove that *in* 1925-26 money wage reduction would have resulted in a permanent or even a very protracted fall in British real wages. Devaluation might prevent the need for price adjustment but it certainly would not have helped restore Britain's waning financial prestige.

Returning to Klein's basic theory of investment outlets, one of the fundamental weaknesses of the attitude which he represents is the sharp distinction drawn between "growth" and "change." This enables one to consider "innovations" as mere occasional "Acts of God" which may normally be disregarded. This view can of course be substantiated "by definition." Speaking practically, however, the distinction is far too clear-cut. We should, it is submitted, *expect* "spontaneous" change both in tastes, techniques and consumption levels as output grows.[14] True, these changes are not smooth and continuous, and growing institutional rigidity may still further retard them. But in the light of what is happening now, Cassel's review of Keynes in which he complained that savers would be hard put to it to supply sufficient funds for a doubling of wealth in the next twenty-five years, makes considerable sense (pp. 98-99). "In the long run we are all dead," said Keynes, and so it was with him. But the rest of us are living in the long run *now.*

Another tremendous field for study which Klein avoids is the relationship

[14] See D. McC. Wright, *The Economics of Disturbance* (New York, Macmillan, 1947), Chap. III.

between the unfavorable sociological conditions which he assumes for the future with the type of policy which he himself advocates. He uses, for example, the usual argument that income taxes do not affect enterprise because the businessman will still work to maximize his *net* profit, however small (p. 171). Professor Boulding's argument that *some* businessmen, at least, feel that they have a choice not merely between profit and loss but also between leisure and effort, has totally failed to penetrate.[15] Nor does Klein ever seem to consider that at least a partial incentive for activity is not merely to enjoy income but also to accumulate and transmit wealth. The explanation for his oversight and others is, I believe, ideological. From the text, Dr. Klein seems to have strong sympathies with socialism if not Marxism.[16]

In closing this review of Klein's basic arguments, it might be worth while to consider its import on the estimation not so much of Klein's work as of the Keynesian system. Klein quotes Schumpeter as explaining the great depression in terms of "the agrarian crisis, protection, high taxes, high interest rates, high wages, and the lack of free price movements" (p. 47). This explanation, large parts of which I would accept, leads me to ask wherein the Keynesian system has affected my thinking? What is the difference in "tone" which Keynesian teaching has given to economists of my generation, whether conservative or radical? The answer, I believe, lies largely in the realm of policy. We no longer believe that *practically* speaking the whole weight of recovery can be put on a program of removing rigidity. And though those of us who retain any traces of economic balance must concede that a spending program may also, and quite easily, become a rigidity in itself, our depression approach remains bilateral rather than unilateral, adjustment *plus* income stabilization.

We have postponed so far the discussion of specific errors in Klein's book. Only a few samples may be given. Klein says, "It is a theorem of the Keynesian system that if each person tries to save more out of his income than previously was done, the community as a whole will not end up with a greater amount of saving" (p. 178).[17] Stated thus baldly, the sentence is entirely wrong. Suppose an offsetting shift in the investment schedule, or a large enough number of "autonomous" outlets? Also, the classical doctrine re-

[15] Kenneth Boulding, "The Incidence of a Profits Tax," *Am. Econ. Rev.*, Vol. XXXIV, No. 3 (Sept., 1944), p. 567. It is noteworthy that Klein cites but four publications (two of them his own) after 1942.

[16] For example, "Keynes, glorifier of the bourgeois life, little knew that the arguments why the Russian economy has been and will continue to be one of uninterrupted full employment under socialism follow directly from his own simple model. . . . Proper policy by social planners can always lead to full employment—this is the superior economic organization which Keynes failed to see" (p. 78). Or "In a capitalist society powerful groups dislike to lose power as well as profits, and they will fight any legislation which reduces this power. . . . In a socialist economy there is less of a problem in overcoming the activities of special interest groups" for "in such a system there is central planning which coordinates" (?) (p. 185ff.).

[17] What *Keynes* said was "assuming no favorable changes in the demand schedule for investment."

garding favorable results from possible interest rate reduction is a conceivable case under proper circumstances.

In dealing with the *Treatise* he says that, in the case of failure of "savings to get invested," the "goal of price stability" could have been reached in *two* ways—stimulate investment, or reduce savings "to an amount small enough to provide (sic) only the meager investment outlets available" (p. 27). "Obviously our prosperity would differ in the two cases." The phrasing is ambiguous and interpretation depends on the definition of "prosperity"; but I sense a confusion of three possibilities (1) unemployment equilibrium at income levels appropriate to the reduced investment rate, (2) stimulation of the investment rate, (3) stimulation of the propensity to consume. And in the latter two cases, there need be no difference whatever in "prosperity" in the sense of mere activity or employment. If it be objected that case (1) will probably involve some downward price fluctuation, it may be replied that by equal reasoning (pure competition) consumer's goods prices would probably rise in case (3).[18]

The level of Klein's doctrinal history may be indicated by the following. Mill is listed on page 126 as an exponent of Say's law. But on page 45 we are told that exponents of Say's law "always" assumed "unlimited" investment opportunities. If it is too much, of course, to expect Klein to have read J. S. Mill, at least he might have read Alan Sweezy.[19] And how could he have missed Sweezy's quotation from Mill regarding the fact that developed industrial countries were habitually on the "verge" of the stationary state?

In discussing Foster and Catchings, Klein tells us they paid too much attention to the "*order* in which spending occurs" (p. 139).[20] Since that is the whole point of their theory, it is clear that Klein—tied to his liquidity preference base—has no idea of the *ex ante*, sequence, price-expectation difficulties they were considering.

Dr. Klein's loose use of terms is shown in his statement that national *income* as computed by the Department of Commerce, etc., means "the sum of expenditures on consumer goods, expenditures on fixed capital, expenditure on working capital (= inventory accumulation), expenditures by the government on goods and services, and the net foreign balance" (p. 113). This, however, is not national income but Gross National Product, and, in view of their wide statistical variation, confusion of the two can be very misleading.

Finally, Klein tells us that, of course, under socialism the planners will make investment perfectly smooth and "autonomous" (pp. 78, 181). This may be so. But *in order* to do it they would either have to keep "public

[18] Perhaps yet a fourth possibility can be given which would convey still more accurately what Dr. Klein seems to have in mind: The rate of investment is permitted to fall to the lower level while the propensity to consume is shifted only just sufficiently to maintain absolute consumption unchanged. There is thus unemployment equilibrium with minimum pressure on price levels (always, of course, omitting wages).

[19] Alan Sweezy, "Secular Stagnation," S. E. Harris, ed., *Post-War Economic Problems.*

[20] Compare my *Economics of Disturbance,* Chap. II. It may be stated categorically that Klein does not understand what Foster and Catchings, Douglas, and frequently Malthus, were talking about.

works" ready to "fill in" (as under capitalism), or else indulge in wholesale rationing and retardation (if not complete sabotage) of new inventions.[21]

Each generation of economists may be said to place glasses upon the eyes of the next. Sometimes the glasses are rose colored; sometimes a gloomy brown. But the one thing we can be sure of is that they will not permanently fit. For no scheme of abstraction confines the movement of reality; frequently the most pregnant elements in a philosophy are its inconsistencies; and not the least test of an author's capacity is his ability to struggle free from the preconceptions of his initial study to evolve new schemes and new translations of the ever-shifting drama of the world. By this approach the present volume is disappointing. Its point of view is that of 1940 and little or no effort is made to relate the book to recent literature. For example, none of the memorial articles are mentioned, or Keynes's last significant reference to "modern stuff gone sour and silly." If economists are ever to be anything more than bickering apologists for the factions of the hour, they must learn to remember *alternative* assumptions, policies, and philosophies; and to be less jaunty before the vastness and variety of that life process which our finite minds are striving so desperately to describe.

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The American Individual Enterprise System: Its Nature, Evolution, and Future. 2 vols. By The Economic Principles Commission of the National Association of Manufacturers. (New York: McGraw-Hill. 1946. Pp. xviii, 1119. $10.00.)

"Here is a vital message for every red-blooded believer in American democracy. Written in response to today's clamor for a realistic and factual explanation of our economic system, *The American Individual Enterprise System* describes in clear detail exactly how the system functions." These first two sentences from the dust jacket of the book are fairly descriptive of the ends which its content is evidently supposed to accomplish, and at the same time suggest its peculiar hybrid character. It attempts all in the scope of about a thousand pages to provide an elementary text in economics, a polemic treatment of that economic theory which favors considerable government participation in the economy, a pamphlet with a credo for the more conservative defenders of democratic capitalism, and a platform for return to old-fashioned liberalism in governmental policy. A thousand pages might seem sufficient for the successful prosecution of all of these tasks, if they were attacked separately. They are in fact approached together and in a mixture, with the results that none of them is effectively done and that the total product has a distinctly amorphous character.

The rather confusing treatment of the various subject matters of the volume presumably stems in part from the fact that the individual chapters were written as separate monographs—each serving multiple purposes—

[21] Compare *Economics of Disturbance,* Chaps. III, V, VI, especially the chapter on the "Planned Business Cycle."

and later pasted together. Any latent element of unity or coherence in the work has been further obscured, however, by the order in which the chapters were assembled—an order which seems to have a distinct random tendency. In the order of their occurrence, the chapter titles (abbreviated) are: Nature of the Enterprise System, Evolution of the System, Fundamental Elements of the System, Types of Business Organization, Employment Relations, Agriculture, Saving and Capital Formation, Money and Credit, Profit and Loss, Prices and Price Determination, Transportation, Competition and Monopoly, Marketing, Government Regulation, Public Finance, Business Fluctuations, Achievements of the System, Government Spending, Abandonment of the System, Program for the Future, American Industry and the Future. Many crucial issues, like that of employment and fiscal policy, are treated in four or five widely separated sections, while various "institutional" chapters are scattered along in such a fashion as to interrupt any potentially consistent thread of discourse.

The work is the jointly supplied product of a Commission consisting of John Hanna, W. I. King, Harley Lutz, L. von Mises, and R. B. Westerfield, all currently from the academic community; of R. W. Burgess, B. B. Smith, and R. S. Tucker, as economists employed by business; and of about ten business executives. In the foreword Robert R. Wason, one of the Commission, is quoted to the effect that the book "is probably the only economic text ever written that carries the signed support of a wide cross-section of American economic and business thinking at its peak. Truth was wrung from constant controversy." With due respect to the several authors as able exponents of definitely conservative economic and political opinions, Mr. Wason's representation concerning the breadth of the cross-section of economic thinking might be questioned. The scale of opinions found among American economists today is effectively covered from A part way to B.

Both the length and the organization of the book deter one from a straightforward analysis of its content. Drawing related materials from their disparate resting places, however, the following summary may be suggested. First, there are a number of chapters which are largely given over to a routine descriptive and historical treatment of economic institutions and functions, regulatory policies, and the like. Business ownership forms, labor history and problems, the agricultural problem, the monetary system, transportation, marketing, the anti-trust laws and public finance are all given a more or less standard elementary textbook treatment. The quality of this material is frequently good, and with more unity of organization and more adequate analysis it would serve, if set apart from materials of a more controversial character, as a useful primer on these subjects.

Many of these chapters are concluded with certain dicta on public policy issues. Some of these, as for example on transportation, are carefully developed and defended. But others are presented without adequate analytical support or on the basis of theoretical stereotypes which are never really examined. For example, we learn that the government should withdraw entirely from price or production control in agriculture, and also from the farm credit

field, since low interest rates overstimulate production. The quantity of money and credit, and the interest rate policy, should be made quite independent of treasury fiscal policies. Confiscatory estate taxes should be abandoned as destructive of the tax base, and estate taxation should be left to the states. Although arguments might conceivably be developed to support such proposals, the book often does not develop them, instead merely assuming its conclusions. There is no connected treatment of public utilities and their regulation (which might have led to some qualification of the stringent *laissez faire* position of the work) or of government-owned utility projects, although a number of questionable *obiter dicta* on these matters are set forth.

The principal additional content of the work deals, in a rather unorganized fashion, with two issues: (1) the working of the price system and the efficiency of competition as an automatic regulator, and (2) the determinants of the level of employment and the place of government fiscal policy in influencing it.

The treatment of industrial organization, pricing, and competition (in Chapters 3, 4, 9, 10, 12, and 14) calls to mind the remarks of Thurman Arnold in *The Folklore of Capitalism,* concerning popular economic mythologies. Corporate size is said by the Commission to offer no problems *per se,* so long as the rights of shareholders continue to be adequately protected and conspiracies in restraint of trade are prohibited. Big business emerged in pursuit of economies in production, except in a few regrettable instances. The individual shareholder can affect corporate management policies by selling his stock if he disapproves; thus the market will reflect public appraisal of managements. Unduly prolonged perpetuation of concentrated power is checked by the surprisingly frequent bankruptcy of large corporations.

Competition is said to exist whenever there are two or more firms selling a product without collusion, and such competition is regarded as a reliable automatic regulator which will drive profits and prices to a "satisfactory" as opposed to monopoly level. The theory of oligopoly is not recognized, although its essential contentions are refuted by the unsupported statement that concentration has no significant effect on competition (source: the T.N.E.C. findings). The idea of monopolistic competition is implicitly recognized but passed off as unimportant. Hence competition will be a reliable automatic regulator, giving determinate and socially desirable results in the American economy, provided only that the anti-trust law is enforced against conspiracies. This reviewer does not understand entirely this reversion to pre-Chamberlinian price theory as a basis for arguing matters of public policy. The defense of the *status quo* is not convincing nor sophisticated nor clever. Schumpeter in his *Capitalism, Socialism, and Democracy* made a good defense of modern capitalism while recognizing explicitly the existence of modern price analysis, but his example goes unnoticed.

On employment and fiscal policy (treated variously in Chapters 7, 8, 15, 16 and 18) a consistent position is eventually developed, although much of the earlier exposition is extremely obscure and overcomplicated. The essential points would seem to be (1) that a bad relation of saving to private invest-

ment may occasionally have adverse effects on employment, (2) that deficit-financed government spending will increase employment but will not give results as good as a spontaneous recovery induced by increased private investment would, and (3) that the multiplier theory is an uncertain guide because the marginal propensity to consume is variable and because increases in government spending *may* cause decreases in private investment. From potentially valid arguments of this sort is extracted the *non sequitur* that compensatory spending does practically no good and should be abandoned, with the government turning its attention entirely to encouraging private saving and investment. This policy conclusion is given later support, however, by the statement that serious business cycles are caused mainly by bad credit policies, wars and natural disasters, and unwise governmental policies. Thus we are left with the implication that good credit control and a government policy encouraging to business will be sufficient to avoid any prolonged departure from a desirable level of employment.

The work is concluded with a detailed summary of public policy proposals (Chap. 20), which we will not review here. Whatever their merit, and many of them are quite sensible, most of them are not very convincingly supported in the underlying volumes. As a whole this is not an impressive work, and it is extremely unsatisfactory on the level of analysis. It should not be especially effective for either education or indoctrination.

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Principles of Economics. 3d ed. By FREDERIC B. GARVER and ALVIN H. HANSEN. (Boston: Ginn and Co. 1947. Pp. ix, 463. $4.75.)

The third revision of this standard text "represents a comprehension revision of both the theoretical and the descriptive chapters" of previous editions together with the addition of a number of chapters and sections which bring the earlier material up to date. The text is standard and orthodox. The usual subjects are presented in the accepted manner. Consequently, the volume should appeal to those who teach the elementary course in economics, most of whom, I regret, hesitate to stray from the beaten path. The authors state that "This text is not easy"; yet I found it to be no more difficult than most of the standard texts. Especially are the chapters on economic problems excellently presented.

The volume is not above criticism on several scores. A number of technical terms are used before they have been defined for the reader; such as demand (p. 11), supply (p. 11), voting trust (p. 17), marginal costs (p. 31), marginal unit cost (p. 38), economic rent (p. 280), etc. The doctrine of comparative advantage or costs (p. 426) and the effect of the forces of supply and demand (p. 10) are listed as "laws."

As is customary with authors of elementary and advanced texts in economics, some confusion exists as regards the factors of production. Production is said to be carried on by three types of activities, *i.e.*, labor, enterprise, and investment (p. 32), but on page 33, labor, natural resources, capital, and

the entrepreneur are listed as "service rendering objects," while on page 108, land, labor and capital are given as "the major factors of production." Why these three are more important than the entrepreneur is not explained. The entrepreneur, however, comes in for a lengthy discussion (pp. 16-17, 310-12). I have always been interested in the attempts of my fellow economists to define that elusive factor of production and his functions. Garver and Hansen further confuse me. They state that he is "the person or group of persons who control the business unit" (p. 16) and dictate its policies (p. 17), and who in a corporate enterprise are "generally though not necessarily stockholders" (p. 17). Among the stockholders only those who have a majority vote and who control the corporation are entrepreneurs (p. 17), yet "The stockholders elect the board of directors, who in turn elect the officers and control the policies of the corporation" (p. 19). Presumably, the directors are the entrepreneurs even though they may not be stockholders. "Entrepreneurship entails . . . financial control" (p. 18). Hence, if bankers, who are not stockholders, control the policies of a corporation, they are entrepreneurs. Entrepreneurs receive "economic profits or pure profits" (p. 310). Hence, these bankers, though not stockholders, receive profits, and the non-voting or minority stockholders, who are paid dividends, are not entrepreneurs and receive no "economic profits." Sort of confusing, isn't it? Why not do as the business world does and say that the owners or part-owners of a business are the entrepreneurs, are entitled to receive profits, and are paid all or part of profits in the form of dividends in the case of a corporation or profits in the case of other forms of business organization?

Equally confusing is the authors' treatment of "capital." Capital is "any physical agent of production other than man and natural resources" (p. 292); it is "capital goods" (p. 292). It receives a return "commonly called interest" (p. 292); yet "not all of the return to capital goods falls into the category of interest" (p. 292). Who ever heard of capital goods (for example, a machine) receiving interest? Interest is paid to those who lend funds either for productive or consumptive purposes. "Capital is said to be saved" (p. 292). Who ever heard of a machine being saved? The funds invested in it are saved or are based upon savings. Capital "can be produced only by the expenditure of labor and the use of natural resources" (p. 292. *cf.* also p. 303). Presumably machines are never produced by the use of machines or other capital goods working along with labor and natural resources. The authors state that there are two kinds of capital, *i.e.*, "producers' capital" and "consumers' capital." The former "consists of all produced means of production employed by entrepreneurs in business undertakings" (p. 293). But they also state that "producers' capital consists of all material wealth that aids in further production" (p. 293). Presumably land (material wealth), although not produced, that is used in further production is to be classed as "producers' capital." "Consumers' capital . . . consists of [durable] produced means of productions that yield utilities directly to their users" (p. 293). "Consumers' capital" intrigues me. "A house owned by the person who lives in it is consumers' capital"; so are "furniture, carpets, and automobiles used for pleasure" (p. 293). I surmise

that these goods all receive interest! Wouldn't it be a lot simpler and much nearer the facts of the economic world to state that capital is the funds that are used for productive purposes in the hope of obtaining an income in terms of money, and that capital goods are the produced physical means of production? Thus, a firm uses capital to obtain natural resources, labor, and capital goods in order to engage in production, and payments of rent, interest, and dividends are made to the owners of capital, and wages to laborers.

The chapters on price also interested me greatly. We are told that "Neither it is true that demand falls off as a result of a rise in price" (p. 64); this is prior to a discussion of a demand schedule, yet on page 66 the authors state that "an individual buys less freely of a commodity when the price of that commodity is high than when it is low," and on page 65 they declare that "A consumer might be willing to pay a dollar a dozen for fresh eggs, but in all probability he would stand ready to take only a limited quantity at that figure." Again, "A small change in the price of milk does not affect the consumption in some communities, while in others it does" (p. 91). Somewhat confusing!

Several slight errors occur in the chapter on money and banking. The authors state that unlike other units of measurement "the monetary unit is itself a fluctuating one" (p. 201). The monetary unit doesn't fluctuate; its value does. Under the law of 1934 the President of the United States was permitted to reduce the size of the gold dollar by 50 per cent, not "50 to 60 per cent" (p. 202). The United States is not on an international gold bullion standard (p. 202). Our present standard is not international, but national, and no notes may be redeemed by the public at the Treasury in gold bullion. Federal Reserve notes are not issued by the Federal Reserve banks (p. 204), but by the Board of Governors of the Federal Reserve System against security put up by the Federal Reserve banks and by them placed in circulation. The weight of the silver dollar is not 371¼ grains of pure silver (p. 205), but 412½ grains of silver 9/10 fine. Gresham was not the first to "clearly state Gresham's law" (p. 205). Oresme did just as satisfactory a job many years earlier. In a later section (p. 415) the authors err in stating that there can be a par of exchange between a country on a gold basis and one on a silver basis.

The authors follow the lately adopted practice of the economists in listing "demand deposits" as money (p. 201), although demand deposits do not circulate as media of exchange. It is the checks and drafts that are drawn against demand deposits that serve as media of exchange. The authors also use the term "currency" to cover all media of exchange that are generally accepted, although Congress and bankers use that term only in referring to paper money issued under the laws of Congress. The authors go "all out" for the Fisherine equation of exchange, stating that it is "absolutely incontrovertible. . . . It is a mathematical truism" (p. 232). Space does not permit a complete criticism of their position. Suffice it to say that demand deposits (M′) are not media of exchange; promissory notes, stocks, bonds, barter, all represent purchasing power but do not appear in the equation; and goods that are ordered today at current prices (not paid for today with media of

exchange), may be paid for months later; hence how can M and M′ used in the future affect prices today when they are not in circulation today? Also, if the general price level is the sum total of individual prices, and if individual prices are determined by supply and demand, cost of production, marginal utility, or what-have-you, then why devote thirteen chapters to individual prices only to forget all that has been stated therein when discussing the forces affecting the general price level?

In reading the chapters devoted to distribution, I at times found myself thinking that I was again reading J. B. Clark's *Distribution of Wealth*, for the discussion of wages, rent, interest, and profits is 100 per cent devoted to the marginal productivity approach with many confusing statements thrown in for good measure. "Wages are the price paid for labor, and like all other prices, they must be explained in terms of supply and demand" (p. 260); the "marginal value product of labor is exactly equal to the wages for producing the marginal physical product" (p. 263); employers will add additional laborers "up to the point where the last additional laborer adds only enough to compensate them for his wages" (p. 263); "for industry at large wages do not determine marginal productivity" (p. 266); "so marginal productivity of labor does not depend on the wages paid" (p. 266); "at the rate of wages prevailing" by "substituting capital for labor, the entrepreneur raises the marginal product of labor" (p. 266); and wages are "seen to be determined . . . by the physical marginal productivity" (p. 287). Hence, wages determine marginal product and they don't determine marginal product; wages are determined by supply and demand; and marginal product varies even with wages being given. Sort of confusing!

The authors concern themselves almost exclusively with the rent of land, devoting only a short paragraph to the rent of a building, and saying nothing about the many other things in this world that are rented. The rent of a building is carefully segregated into rent, interest and depreciation, wages, and possibly profits (p. 280). I am sure that many landlords will be delighted to hear of this so as more correctly to make out their income tax returns. Rent "is the *normal competitive* return to land" (p. 280). Sorry, but rent is paid to landlords, not to land! "The amount of rent that will be paid for any piece of land depends upon the marginal productivity of that land" (p. 282). Yet, "They [the farmers] find that rents are fixed by the market" (p. 283). And in the case of urban land, "It is the great demand for land that causes it to be highly improved and to yield a high rent" (p. 289). Again confusing! Furthermore, the authors, as is true of practically all writers on the subject, omit consideration of the fact that few, if any, farms are made up solely of one grade of land. Why cannot our economists be more practical?

The chapter on interest opens with the statement that "capital receives a return . . . commonly called interest" (p. 292). Capital has never received anything; it is the owner of capital, who lends his funds to others, who receives interest. According to the authors, interest, the return on "capital goods" ("capital") "is governed by marginal productivity" (p. 294). "In 'capital rich' countries . . . the marginal productivity of capital is likely to

be low, and interest rates are likely to be pushed to a very low level" (p. 308). "And at any time the rate of interest is determined by the interplay of the forces of demand and supply" (p. 307). "All this contributed to a high degree of liquidity, abundance of loanable funds, and so a low rate of interest" (p. 349). "There are, however, other factors that affect the fluctuations in the rate of interest besides the depreciation of money and the fluctuations in prices" (p. 352). Some more confusion!

The chapter on profits, four and three-fourths pages in length, is undeniably most unsatisfactory as is true of the treatment of this important subject in most elementary economics textbooks. The main reason for this deficiency is that there still has to be published a first class treatise on profits which the textbook writers can summarize or popularize. The authors differentiate between what they term "business profits" and "economic" or "pure profits" (p. 310). The former relates to the net earnings of an enterprise after all payments plus depreciation have been made. "Economic" or "pure profits" go further and in addition deduct all imputed rent, interest, and some profits as well as the wages that the entrepreneurs "could earn as salaried managers" (p. 310). Even after it had been decided who the entrepreneurs are, and that would be no easy task according to the authors' definition, how would it be possible to figure out the salaries that they could earn as managers? I am sure that the computation of "economic" or "pure profits," which the authors present on page 310, showing how pure profits are different from business profits, would intrigue any businessman, and would justify his accusations about "ivory towers." I am glad that few businessmen read some texts in elementary economics. As is to be expected, the authors claim that entrepreneurship receives "a share that depends on its marginal contribution to the total value product of the firm" (p. 313). But there are no charts and no analysis, such as appeared in the chapters on wages, rent, and interest, to show that such is the case. "Dosing" the other factors of production with units of entrepreneurship is, so they say, no more abstract than the general concept of applying doses of land, labor and capital goods, which they admit is an "abstraction" (p. 314).

I hope that the authors and the reader will not think that I have intentionally attempted to take statements out of their context for the purpose of showing how confusing some parts of this volume actually are. I have sincerely tried to avoid doing so. I should hesitate to use this text in a classroom of keen thinking students.

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Religion in Economics—A Study of John Bates Clark, Richard T. Ely, Simon N. Patten. By JOHN RUTHERFORD EVERETT. (New York: King's Crown Press. 1946. Pp. xiv, 160. $2.50.)

This book is an important contribution to an increasingly important field. The four case studies are well worth while for their own sake (the fourth is Sumner, dealt with in the introduction as a sort of jumping-off ground) but

it is the author's further intention to throw light on the nature of the relation between religious tradition and economics regarded as a normative discipline. Josiah Stamp's valuable but little known study of this problem (*The Christian Ethic as an Economic Factor,* 1926) emphasizes the duty of the economist, *qua* scientist, to describe, not to prescribe, and then examines the extent to which what is described is or is not factually dependent on a given ethical or axiological environment. Dr. Everett approaches the problem biographically rather than analytically, thereby reminding us how much of what we take to be the "given" element is itself a conceptual structure, subject to the kind of change that affects all such structures.

The study of Clark is particularly useful in exposing the extent to which Clark tacitly, but very definitely, postulated the Christian moral order (or his own conception of it) as the basis of his economic system. At a time when so many of his colleagues were moving away from competition as their major premise Clark's intellectual pilgrimage went in the opposite direction, until in *The Distribution of Wealth* "it would seem that we are again shaking the invisible hand of Adam Smith." But it is well to remember that Smith was not a professor of moral philosophy for nothing. He, like Clark, took over the Christian values, without which it is difficult to envisage benevolent sympathy as part of any "natural" order; and in certain respects Smith's grasp of them was wider than Clark's. Clark, as Dr. Everett rightly observes, "always assumed justice to be that which obtains when every man gets exactly what he produces." It is hard to reconcile that with the story of the laborers in the vineyard (always a tough one for economists, even those—if any—who read Ruskin). In fact, without the distinction between commutative and distributive justice it cannot be done. Similarly, Clark's static theory can hardly be reconciled with his religious sentiments unless his use of the expression "natural law" is taken in the scholastic rather than the Spencerian sense. Dr. Everett gives us a careful analysis of the points in his work at which this contrast is critical, and thereby renders a distinct service to Clark's reputation.

The quasi-mechanistic tone of Clark's developed theory would have been more acceptable to Sumner than to Ely, and yet in intention Clark was much closer to the latter. Dr. Everett attributes to both men the belief "that economics was a science that should concentrate its efforts on studying the actual conditions of men so that new ways could be devised for gaining a social goal derived from their religion." That makes it, as MacArthur said of peace, essentially a theological problem. Ely's approach, if the distinction may be allowed, was religious rather than theological; but the contrast between him and Clark is highly suggestive, especially where it touches the role of the state. At that point one can hardly avoid going farther, and Ely did in fact go farther. He was always *en route,* always a seeker; his autobiography (*Ground under our Feet,* 1938) deserves much wider reading than it has had, especially by members of the American Economic Association, who would find challenge and stimulus in the original discussions there recorded of the aims of our society.

Ely's unceasing endeavour both to define and to apply the norms of a

Christian economics suggests a further contrast with Patten, the relativist and ameliorist. Patten's curious blend of scepticism and optimism had a direct effect, which Dr. Everett notices, on the earlier phase of New Deal economics; and the issue prompts our author to raise the question how far it was really religion that his subjects were fundamentally concerned with. "In many ways these authors offer an excellent example of ideological defense of the middle class. The middle class of modern times came into existence with a fighting faith: a faith in reason and a protest against the non-rational elements in early Western Civilization. . . . For these men, worship becomes nothing more than the public celebration of social solidarity." Whether or no that verdict is wholly fair, the recent utterances of H. G. Wells provide a significant corollary.

This book is the product of thorough study and serious thought, and the King's Crown Press is to be congratulated on its presentation in pleasing and inexpensive format.

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National Economies

Die Deutsche Wirtschaft Zwei Jahre nach dem Zusammenbruch, Tatsachen und Probleme. Essays by members of the German Institute for Economic Research. (Berlin: Albert Nauck and Co. Pp. 287.)

Under the title *The German Economy Two Years after Collapse—Facts and Problems,* the German Institute for Economic Research presents the first digest of German statistics applicable to the four zones of occupied Germany. This new organization is the successor of the institute known as Institut für Konjunkturforschung before the war, which made valuable contributions to economic and financial research in Germany during the 1920's and early 1930's. Although a private organization, the Institute has just recently received a grant by the Länderrat, the top body of the German governmental structure in the United States-occupied zone. Besides much research work of its own, it has, in this book, made use of both military and civilian government statistics collected after 1945.

Apart from the physical difficulties connected with such an undertaking (disruption of normal economic life after the collapse, restricted communications, and shortages of paper and printing facilities), the real problems arise out of the lack of any base of comparison and the impossibility of giving adequate expression to structural shifts among vital segments of the economy. Despite these, within the scope of its program, the book constitutes a valid picture of present-day German problems.

The series of studies contributed by members of the Institute starts out with an investigation of the economic effects of territorial losses in the East and the West. It points out that, despite the well-known importance of the Eastern territories to the food supply of the entire country, one is apt to underestimate the resources and industrial capacity of the areas east of the

Oder-Neisse line. Thus, of the loss of 27 per cent of Germany's 1937 bituminous coal reserves, fully 15 per cent were located in these eastern territories, compared to 12 per cent in the Saar. Of other industries, notable losses affect the saw mill, paper and wood pulp, and sugar industries. Furthermore, the Netherlands have raised claims to areas with coal and oil reserves near the western border. Altogether, the loss of one-quarter of the former area is significant not so much *per se* as in conjunction with the changes in population and industrial capacity.

Primary among these is the spectacular change in the population structure. The loss of the war, with its huge total of killed, maimed, and captured has decimated the most productive parts of the population. On the other hand, the masses of "Volksdeutsche" expellees sent to Germany, mostly penniless and stripped of their belongings, have actually increased the total population of the present area of Germany over the 1939 figure, even though almost all of the men between the ages of 15 to 50 were retained. Thus, this increase has been accomplished at the expense of a loss of able-bodied men, accentuated by an excess of over- and under-age groups and women. While the resultant increment in population density brings Germany into the ranks of the most densely populated countries of Europe (England, Belgium and Holland), it *ipso facto* prevents their high degree of industrialization because of the nature of these population shifts, as evidenced by the scarcity of miners for the Ruhr. Even apart from the destruction of heavy industry through war damage and reparations removals, the economic recovery of the coming decade will be limited by the necessity of creating employment for millions of women who face a total lack of prospects for marriage. Even the return of an unknown number of prisoners of war still in Russian hands will not be sufficient to make up for the fact that, among the millions of expellees brought back into Germany, there are hardly any able-bodied men. As a result, the budgetary load of increased payments for unemployment, sickness, and old-age benefits will necessitate high tax rates for a long time to come.

Some natural relief may develop from the fact that current estimates point to a prospective decrease of the present population amounting to almost 6 per cent between now and 1970.

The chapter on war damages constitutes a first attempt to tie hitherto fragmentary data on the extent of destruction through aerial warfare, ground combat, and pillage into prewar estimates of total national wealth. Because of the difficulties encountered in establishing comparative price indices, figures are presented which estimate the total shrinkage of national wealth (including territorial loss) at close to 50 per cent of 1939. These figures are far from final. Reparations and restitutions are continuing; and no allowance has been made for the effect of requisitions and reparations out of current production. Furthermore, it is difficult fully to appraise the ultimate economic repercussions; thus, it is estimated that the reduction of double-track rails in the Russian zone to single trackage has resulted in an 80 per cent loss of railroad efficiency.

A separate statistical section attempts to furnish continuity between the

last organized statistics published prior to the end of the war and earlier statistics of the occupation period. Under the impact of total war, statistical activities had to be sharply curtailed in 1941 and 1942. Materiel and other shortages, no less than the increased call-up of men to the armed forces, brought about a virtual cessation of what was once one of the more efficient governmental reporting services. Likewise, economic developments in many fields were kept from the population, particularly figures on money and credit. One of the results was that there is now rather wide-spread confusion as to the relative amounts of loss between the war and postwar periods. Many Germans today are still unaware of the fact that the last year of the war, and particularly the military penetration of Germany, gave a tremendous impetus to the rate of loss. The fanatical last-ditch stand of the Nazi armies was reflected in the last-minute slaughter of hundreds of thousands of head of horses and cattle; close to one-half of the total destruction wrought in large cities; the blowing up of thousands of bridges; and the issuance of almost 20 billion marks worth of currency. Nevertheless, postwar statistics reflect the tremendous additional declines, even from these low levels, in every field of economic life subsequent to VE-Day. In terms of 1946 price levels, total industrial production of occupied Germany, including Berlin, is now more than 25 per cent below the bottom reached during the 1932 depression.

The volume next passes to a review of three key problems of the German economy: food, industrial production, and coal. Here again, statistics alone are not able to follow the intricate interlock of the several problems. This inter-relationship must be understood to appreciate the economic reasoning behind the shift away from the Morgenthau plan which our German policy has had to execute since 1945. With the loss of the eastern territories and the lack of farm machinery, fertilizer and seed, no intensification of agriculture has been possible; and agricultural output could not be increased in any other way. Industrial production, in turn, not only depends on coal supplies from the Ruhr and food for its workers; but, in turn, must supply the mines with badly needed replacements for worn-out equipment and machinery, not to mention urgent needs of miners for food, housing and clothing. The demilitarization program laid down at Potsdam adds further to these difficulties; since, in the absence of a system of key-point controls over strategic industries, the singling out of war industries becomes illusory with the concept of total war. Elimination of heavy industry, particularly in the machine tool field, bases any future substantial production increase upon larger imports. These, in turn, can now only be paid out of the products of remaining light industries. Trade analysts are beginning to see the impossibility of achieving a lasting German export surplus out of light industries, where competitive conditions and dollar shortages have already taken the edge off postwar demand.

A separate chapter takes up the significance of the standard of living set for Germany by the Potsdam Agreement and, indirectly, by the level-of-industry plan of March, 1946 (revised meanwhile). The actual fixing of an "average European standard of living" as a base of comparison must take

account of any number of imponderables, such as relative standards of housing, clothing and nutrition. In the latter field, for instance, estimates of caloric content alone are entirely inadequate in the long run, since they present only a partial picture of food values. For instance, the contrast between town and country diets, not brought out by figures on average rations, grows sharper each day. Lastly, it seems hazardous to derive standard-of-living indices from statistics on national income or national product, as, with the lack of consumers' goods, tangible wealth in the hands of consumers today is probably a more potent factor than either of these.

The last portion of the volume is devoted to a discussion of the monetary and financial problems of the German area. It is by now well known how the "ailent" method of war financing resulted in an overloading of banks and insurance companies with government debt, instead of using the latter to reduce the pressure of unspendable funds in the hands of the public. Simultaneously, there has been an even larger proportionate increase in the amount of currency in circulation. This entire monetary "overhang" has remained in existence in the Western zones; whereas in the Russian zone and Berlin, all pre-VE-Day bank deposits were blocked, although currency remained unaffected by this order. It is this excessive volume of money which today hampers both production and distribution, and which is responsible, probably more than any other single factor, for the preponderance of the black market. Sharply increased tax rates have resulted in balanced budgets throughout the United States zone by 1946/47; but these high tax rates are often quoted as a further deterrent from legitimate productivity and do not restrain the black-market operator.

There follows a discussion of several plans for currency reform brought forward by the occupation powers (notably, the United States-sponsored Colm-Goldsmith plan) and by German experts. In addition to the divergence between the various approaches as such, there is much disagreement on the timing of the action: whether currency reform appears practical before higher production levels are reached; or whether currency reform must precede any attempt to increase the latter. To provide maximum production, currency reform alone will probably be insufficient unless accompanied by a scheme for the equalization of war damages to provide investment capital for the replacement of destroyed plant. Most of this equalization must become a charge against the remaining real property. To what extent such a plan which involves a redistribution of wealth may be realized without outright socialization is among the more stimulating problems brought out by this treatise.

The initiative shown by the Institute in gathering and interpreting working statistics to elucidate these problems is an indication of the resourcefulness with which some of the more progressive elements of present-day Germany face an uncertain future. It augurs well for the success of the quarterly economic review which the Institute plans to begin publishing in the near future.

ADOLPHE J. WARNER

Berlin, Germany

American Tariff Policy towards the Philippines, 1898-1946. By PEDRO E. ABELARDE. (New York: King's Crown Press. 1947. Pp. viii, 233. $2.75.)

Professor Abelarde's book, except for the last chapter, was printed in the Philippines on December 7, 1941—the very day on which Japan launched its attack on the Islands—and all copies of the book appear to have been destroyed in the sack of Manila. Professor Abelarde led such a precarious existence during the Japanese occupation of the Islands that he was unable to resume work on his book until the end of hostilities. In 1945, he returned to America and "found work in a New York department store during which time he rewrote his book and added the final chapter thus bringing it up to the day of Philippine independence."

The stated purpose of the book is "to show the role of the Congress of the United States in handling tariff legislation for the Philippines." The history of this legislation is reviewed for five major periods: (1) August 20, 1898 to March 8, 1902, when the Islands' tariffs were under jurisdiction of the United States Military Government; (2) March 8, 1902 to August 5, 1909, the interval during which the United States Revenue act of 1902 governed the rates of duty applicable to United States imports from the Philippines as well as the Philippine duties applicable to imports from both the United States and foreign countries; (3) August 5, 1909 to October 3, 1913, the period during which the United States Tariff act and the Philippine Tariff act, both dated August 5, 1909, were in effect; (4) October 3, 1913 to May 1, 1934, an interval during which Philippine tariffs, and United States tariffs applicable to Philippine imports, were not changed much from those which prevailed in the preceding period; and (5) May 1, 1934 to July 4, 1946, a period marked by several important developments commencing with Philippine acceptance of the Tydings-McDuffie act (commonly known as the Philippine Independence act), and culminating in the birth of the Philippine Republic on July 4, 1946. Appendixes of the book reproduce selected sections of the United States Tariff acts of 1909 and 1913 and of the Tydings-McDuffie act; they give also a series of abbreviated statistical tables pertinent to United States-Philippine trade. An extensive bibliography follows the appendixes.

During the period of military occupation of the Islands (1898-1902), Philippine products entered the United States and American products entered the Philippines on the same tariff terms as imports from other foreign countries. The United States Revenue act of 1902 granted imports from the Philippines a reduction of 25 per cent from full United States duties, but United States products imported into the Philippines did not at that time receive preferential tariff treatment. Reciprocal free trade, subject to minor restrictions, was instituted under the United States and Philippine Tariff acts of 1909; and under the Philippine act, insular export duties were abolished on shipments to the United States. Subsequent tariff acts of the United States —those of 1913, 1922, and 1930—modified only slightly the reciprocal free-trade relations between the Islands and the United States. Commencing in 1934, however, Congress passed a number of laws which had important effects on United States-Philippine trade: the Philippine Independence act, the Jones-

Costigan act (absolute quotas on sugar), the Revenue act of 1934 (processing tax on coconut oil) and the Cordage act of 1935 (absolute quota on cordage).

United States-Philippine trade was at a standstill from the latter part of 1941 until the establishment of the Philippine Republic in July, 1946. Trade relations between the two countries are now governed by the Philippine Trade act of 1946. Under the provisions of that act, reciprocal free trade (subject, however, to several quota limitations) is to continue until 1954, following which preferences are to be gradually eliminated over a twenty-year period.

Professor Abelarde discusses in detail the positions taken by various commercial and political groups which have influenced United States economic policy toward the Philippines. For all but the most recent legislation bearing on United States-Philippine trade relations, he analyzes hearings before Congressional committees; he identifies the major pressure groups; and he interprets their apparent motives. However, his treatment of the Philippine Trade act and the Philippine Rehabilitation act, both of 1946, is wholly superficial. The origin of the legislation is not correctly stated; the issues involved and alignments of interest are not adequately set forth; and the consequences of the legislation are not properly assessed. The book concludes with the comfortably ambiguous admonition that "Philippine and American statesmen have an obligation to deal with the problem of American-Philippine relations in such a way as to assure the continuance of good feeling between the two peoples, and the preservation of the Philippines as a real beachhead of democracy in the Far East."

Professor Abelarde's principal sources of material are the *Congressional Record*, House of Representatives reports, and Senate documents, all of which he cites with excessive frequency or quotes at undue length. There appears, moreover, to be little correlation between the space which Professor Abelarde devotes to consideration of any particular issue and its significance. For example, he attaches sufficient importance to a minor, but somewhat lengthy and detailed, provision of the Payne-Aldrich act of 1909 to reproduce it *in toto* (pp. 106-7) and later to give a résumé of it (p. 108) in his summary of the section. The provision referred to sets forth the conditions under which United States goods shipped to the Philippines were entitled to duty-free entry when such goods "were unpacked while *en route* by accident, wreck or other casualty, or so damaged as to require repacking. . . ." In vivid contrast, Professor Abelarde devotes little space to his analysis of the Philippine Trade act of 1946—the act which is to govern United States-Philippine trade relations until 1974. His failure to delve more deeply into this piece of legislation, as well as into the Philippine Rehabilitation act of 1946, may possibly stem from his incorrect surmise (p. 190) that they derived their substance from inquiries of the Filipino Rehabilitation Commission. That Commission had little or nothing to do with the preparation of those acts.

Professor Abelarde presents only a sketchy analysis of the economic impact on the Philippines of United States tariff policy. Also, such economic observations as he makes are not always correct. For example, he states (p. 141) that the duty-free entry into the United States of Philippine coconut oil and desic-

cated coconut gave an advantage to these products ". . . equivalent to the amount of the [United States] duty." Neither of these products, but more particularly coconut oil, has benefited to such an extent.

The substantive deficiencies of Professor Abelarde's study, together with other deficiencies which more severe editing might have remedied, militate against recommending the volume. The student who is already familiar with United States-Philippine trade relations will learn little from it that is new; the novice can advantageously acquire his information elsewhere.

BEN DORFMAN

Washington, D.C.

Le Relèvement Économique et Financier de la Hollande—un Succès du Dirigisme. By EDOUARD SILZ. Centre d'Études de Politique Étrangère pub. no. 20. (Paris: Paul Hartmann. 1947. Pp. 101.)

This booklet, based on data up till September, 1946, intends to give a survey of the reconstruction policy of the Dutch government, which the author considers to be "a success of planning." The main emphasis is laid on the financial measures, particularly the replacement of the old notes by the new ones and the blocking and subsequent deblocking of bank balances. The other aspects of the reconstruction policy are dealt with somewhat more briefly, presumably since at the date the book was published it was not yet possible to say very much on the effects of these other measures. It must have been difficult for the author to make up his mind as early as he did; even at this moment (fall, 1947) it is still difficult to judge the wisdom and the comparative success of the reconstruction policy of any country.

Generally speaking, the facts and figures communicated are correct. There are some misunderstandings, *e.g.*, when it is said that "an absolute priority is given to the needs of the civilian population" (p. 14) or when it is said that "the increase in wages was not permitted to surpass 125 per cent of the 1940 level" (p. 55), where the intention is that (at that time) the *level* was not permitted to surpass 125 per cent. Sometimes the interpretation of a figure given by the author would seem incorrect, *e.g.*, where it is stated that between January and February, 1946 industrial production fell by 10 per cent (p. 9); here it is overlooked that February is a shorter month. Moreover, the author has had bad luck when reproducing Dutch names, half of which have been misprinted. These are, however, details. The general judgment of the author concerning the Dutch policy seems to the present reviewer to be justified, with the qualification that it can only be a provisional judgment, considering the short interval elapsed since the liberation of the Netherlands. Somewhat more emphasis could have been given to the favorable results of the wage and price policy as compared with Belgium and France. On the other hand, the difficulties in the Dutch export situation at the time the booklet was written would seem to be somewhat underestimated. On the whole, however, the reader of this essay gets a fairly complete survey of the economic policy until the end of 1946.

J. TINBERGEN

The Hague, Netherlands

Economic Systems; Postwar Planning

Man and the State: Modern Political Ideas. Edited by WILLIAM J. EBENSTEIN. (New York: Rinehart. 1947. Pp. xvi, 781. $5.00.)

This volume, edited by a careful and experienced student of politics, displays an extremely intelligent approach to the age-old problem of man's relation to the state. The major political ideas of the modern western world are presented in four sections—"The Foundations of Democracy," "Anti-democratic Thought," "Capitalism, Socialism, and Planning," and "From Nationalism to World Order." The arrangement is such that coherence and unity is imparted to the book as a whole.

Editors are always confronted with a serious problem of selection. Ebenstein has met the challenge by choosing meaningful and significant selections. He has, of course, included excerpts from most of the familiar names in political theory from Machiavelli to Laski. But he has also ranged far and wide to bring together portions of such material as Brandeis's testimony before the Commission on Industrial Relations, Justice Van Orsdell's opinion in the case of *Children's Hospital v. Adkins,* an address by Bolivar before the Venezuelan Congress, the final statement of the T.N.E.C., and the report of Senator Kilgore's Subcommittee on War Mobilization. Some of the material, as for example, Benda's discussion of democracy's abuse of individualism, has been made available in English for the first time.

In the brief introductions preceding each chapter, Ebenstein succeeds in placing the men and ideas to be presented in their historical context. Democracy in the first section and socialism in the third are treated as expressions of an optimistic faith in both the perfectibility of man and the power of reason. In contrast, antidemocratic thought, it is argued, is predicated upon a denial of man's perfectibility as well as a firm belief in the helplessness of reason. He does not hide his bias; he is on the side of democracy, planning and the English brand of socialism. Nevertheless, by putting forth the ablest spokesmen for economic individualism, revolutionary Marxism, and government by an élite, he presents these viewpoints in their most favorable light.

Economists will probably be most interested in Part III of the volume, the first chapter of which includes selections from Locke to Hoover in defense of the principle of private property. In the next two chapters, revolutionary Marxism is juxtaposed against the British conception of gradualism. Teachers of economics will find the last two chapters of Part III the most valuable for their classroom purposes. In the first of these, proponents and opponents of centralized economic planning battle in defense of their respective positions. In the final chapter of this section, entitled "Economic Threats to Freedom," Ebenstein presents criticisms of business excesses by Brandeis, Veblen, Beveridge and others. It is at this point in the volume that economics and politics meet and we come to realize that political forms and institutions are valuable only in so far as they lead to freedom, the substance, if not the shadow of which, must include economic freedom.

The following are suggestive of the few details in which the editor has

opened himself to criticism. Rousseau's general will, for example, is treated as a bulwark of democratic thought whereas much recent scholarship holds that it is just as tenable to view the general will as the tyrannical mechanism by which men are forced to be free. The term "communist" is used in the sense of revolutionary Marxist of the period 1848 without regard for the fact that old terms require a new meaning in the light of the events of recent years. By citing the statistics on the annual immigration quota according to the country of origin under the caption "U.S. Race Arithmetic," Ebenstein tends to confuse race with nationality.

These criticisms are, however, secondary. Ebenstein's volume of readings will be found exceedingly useful in both political science and economics classes. The general reader who is interested in the interlocking interests of economics and politics will find here a mine and a storehouse of ideas on an exceedingly important and perplexing problem.

JULES KOLODNY

New York University

Quelques Problèmes Économiques d'une Société Collectiviste. By JOHAN KAUFMANN. (Geneva: Guerry. 1945. Pp. 166.)

About twenty-five years ago socialists realized that a collectivist state would be faced with the economic problem of allocating resources. Under the impact of the denial by von Mises that a socialist state could solve this problem, theorists have been sharpening their economic tools in attempts to find solutions. Their results have been embodied in a multitude of articles and books. Dr. Kaufmann's thesis, *Quelques Problèmes,* is an attempt to give an overall critical appreciation of these writings.

The collectivist society with which Dr. Kaufmann is concerned is defined as "a system in which the means of production are utilized—in accordance with certain general rules—for the benefit of the community which owns them, and in which the freedom of choice in consumption and work exists" (p. 5). The main problem with which he concerns himself is the narrow one of "the formation of price in a collectivist society." The problems of achieving particular ends are extraneous to the study. These latter questions involve normative judgments and too many other non-economic considerations. There is only a brief discussion of the macro-problem, in Chapter XII.

The basis on which the von Mises school regards the economic problems of a socialist society insoluble is outlined in Chapter II. Apparently the economic calculus is the major problem for the socialists. The solutions which are supposedly independent of price are first considered (Chap. III). For this purpose, Dr. O. Neurath, Karl Marx, and O. Leichter are selected as representative of three broad schools of thought. Dr. Neurath's metaphysical daydreams are given no less attention than they deserve. Of necessity, Marx, who essentially did not offer a solution, is treated only briefly. Leicher is shown to have failed to understand the problem involved.

As in all good anthologies of socialist thought, Barone's mathematical solution is offered (Chap. IV). This is followed by Miss Tich's. Although con-

sidered conceptually sounder than the solutions offered in Chatper III, in practice these are not amenable to *a priori* solutions. On the whole they are impracticable.

The following chapter deals with two major types of pseudo-competition: (a) the case in which the economy is organized on the basis of industry and in which competition takes place between these industries; and (b) the case in which the firms compete with one another. The treatment is very light. The major criticism is based on the arguments of the von Mises school and Hayek, in particular.

The writings of such men as Taylor, Lange, Dickinson, Hall and Hawtrey, are reviewed in Chapter VI. Because of their more vigorous application of the tools of economic analysis, they deserve the more extensive treatment which they receive. The systems presented in this chapter are characterized by two factors: (a) successive trials, and (b) the utilization of the principle of imputation. Lange's use of opportunity costs and accounting prices is presented as the basis for further discussion. On the whole it is held that the basic rule must be that price must equal marginal costs.

Dr. Kaufmann rightly points out that Hayek's criticism of these systems is partly vitiated by the fact that he argues on a different plane. The latter proposes practical difficulties into which these socialist models would run as though capitalist systems operate completely according to model. For three reasons Dr. Kaufmann excludes these models from the category of pseudo-competition: (1) the initiation and/or cessation of an economic activity is not always decided on the basis of profits or losses; (2) price is determined strictly by certain rules; and (3) many of the peculiarities of imperfect competition do not exist.

Having dealt with the central problem, Dr. Kaufmann then deals with certain other issues. The personal, as distinguished from the functional, distribution of income is taken up first. In the main he deals with the suggestions of Hall and Lange, though a number of other methods are also treated. In the latter part of the chapter the hoary problem of incentives is discussed.

In dealing with functional distribution Dr. Kaufmann treats only rent (Chap. VIII) and interest (Chap. IX). It is generally concluded that both interest and rent must be calculated and charged in the allocation of resources. The necessity of interest as a payment for savings is disclosed to be a much more debatable topic among economists.

In the consideration of the "rule of marginal costs" (Chap. X), Dr. Kaufmann discards the arguments that price should be determined by the equality of marginal revenue and marginal cost, and that it should equal average cost. In spite of the difficulties which he raises, he accepts the "price-equal-marginal-cost" theory.

He is led to the conclusion that a socialist system can be made to compare favorably with a capitalist system. But even here he hedges by raising the question as to whether or not the socialization of the means of production in itself would be unfavorable to general well-being.

In view of the objective of *Quelques Problèmes*, it is not too surprising that

it contains little that is original or that the whole book is devoted to presenting the arguments of one set of authors, and rebutting them by quoting, paraphrasing, or rehashing in some other way another set of authors.. On the whole, the arguments are well presented. But only on comparatively rare occasions is the reader allowed a glimpse into the author's own mind. As a consequence, the book has little to offer to those already acquainted with the literature on socialism. However, it is good as a summary of the controversy and can be useful as a guide to more intense study by those who read French easily.

MORRIS MENDELSON

Cornell University

National Income and Product; Income Distribution; Consumption Statistics

Production in the United States, 1860-1914. By EDWIN FRICKEY. Harvard Econ. Stud., Vol. LXXXII. (Cambridge: Harvard Univ. Press. 1947. Pp. xiii, 257. $4.00.)

This volume is largely an appendix to Professor Frickey's monumental *Economic Fluctuations in the United States.* But as a lucid analysis of his indexes of manufacturing production and of transportation and communication, it is a valuable reference work in its own right. Having had occasion to examine some of the basic economic data available over the period from the Civil War to the first World War, this reviewer can testify to the extreme care and great ingenuity with which the indexes have been developed and incidentally to the prodigious labor involved. Undoubtedly they will long be used as the "definitive" composites for the half-century which they cover.

Four chapters of the volume are devoted to describing the index for manufacturing along with those for various industrial subgroups. Three are concerned with the transportation and communication indexes, and one with "an index of industrial and commercial production." Finally, there is a set of appendices describing constituent series, derivations of weights, and sundry technical details. The manufacturing indexes are shown annually and the composite is adjusted for secular trend. The transportation and communication indexes are also shown annually and in addition are given monthly with adjustment for seasonal variation. Thus they are of special interest to business-cycle analysts.

Two of Professor Frickey's decisions call for comment. First, it seems to this reviewer that in his efforts to include only the most reliable series and to use only those series available for nearly all the period, he has been too rigid in his selection. There is no list of the series that were examined and rejected for one reason or another so that it is not possible to judge exactly what his criteria were.

Several series that could have been included, but were not, come readily to mind. Within the food subgroup, for example, it would have been possible to put together usable annual data for manufactured dairy products such as

butter, cheese, and condensed and evaporated milk. Also indirect measures provided by various slaughtering series could have been used to represent meat products. Even though these series may not be of the same order of reliability as the ones selected, they would add considerable variety and weight to the food subgroup which, as developed, contains only wheat flour, refined sugar, coffee and cocoa. Similarly, it would have been possible to develop annual lumber series prior to 1904 rather than just using the data for the decennial census years prior to that date. This would seem to provide a better alternative than having no annual lumber index prior to 1904. How a more liberal policy concerning the selection of basic series would have affected the movements of the index for total manufacturing cannot readily be ascertained. At the very least, however, an intensive examination of such supplemental data might throw some light on the somewhat disturbing differences one finds in the years after 1899 between Professor Frickey's manufacturing index and those of other investigators, such as Fabricant.

Second, this reviewer was perplexed as to the meaning of the "index of industrial and commercial production." Arithmetically, this index is a geometric average of the production and transportation and communication indexes. Its economic meaning, however, is far from clear. By implication, it apparently is intended to cover industrial and commercial production as a broad economic entity. If so, presumably one or more of the indexes is supposed to represent activity in industries other than those directly measured, a supposition of doubtful validity. If, on the other hand, the combined index is simply a measure of the output of the industries concerned, the combination might better have been made by using value added weights or approximate equivalents as was generally done in combining sub-indexes.

These observations, of course, are largely matters of personal opinion and should not be taken to reflect upon the basic merit of Professor Frickey's work. Throughout the volume there is every evidence of sound techniques and cautious analysis. Moreover, the complete description of methodology and the discussion of possible biases in the results are models which all developers of new economic series would do well to copy.

WILLIAM H. SHAW

Washington, D.C.

Public Finance; Fiscal Policy; Taxation

Economics of Public Finance. By EDWARD D. ALLEN and O. H. BROWNLEE. (New York: Prentice-Hall. 1947. Pp. xvi, 535. $5.35.)

This book represents a well-planned attempt to provide a practical, well-rounded approach to the currently pressing problems of public finance from the point of view of welfare economics. The discussion is focused on the objectives of securing full employment, of promoting the rational and efficient allocation of resources, and of equalizing the distribution of resources among individuals. To this end the authors have set forth the general outlines of public policies and institutions that bear on welfare from the overall financial

angle, have analyzed their operations, and have examined and appraised a wide variety of proposals and suggestions. Throughout they have presented their own views frankly; the general attitude is one of willingness to experiment and introduce such innovations as appear to have warrant in economic theory; the point of view is of a progressive liberalism with which this reviewer finds himself in general agreement. Yet, as is perhaps inevitable in a comprehensive text, these views are sometimes expressed with a paucity of supporting argument that borders on dogmatism. And the success of the bold excursions into new territory, hitherto but inadequately covered in public finance texts, is dimmed by some significant misstatements concerning basic facts and the complete omission of some fairly important items.

The volume is divided into five main parts. The first consists of two chapters, one devoted to a discussion of the role of government in the economy, the other covering the development and present dimensions of our tax, expenditure, banking and debt structure.

The second part consists of a discussion of the relation between fiscal and monetary policy and full employment, including a chapter on the relation of the monetary system to full employment; one on the private institutional factors affecting full employment, such as technology and monopoly; one on the use of "non-budgetary" methods to produce full employment (*i.e.*, banking policy, purchasing policy, monetary policy); a fourth on the use of deficits and surpluses; one on the practical problems of forecasting, timing, and the actual operation of the controls; and a summary chapter on full employment policy as a whole.

A third section consists of a chapter discussing the basis upon which decisions should be made as between private and governmental use of resources; and a chapter on the effects of fiscal policies on the personal distribution of income.

The fourth and largest section covers the more usual topics of public finance: after an initial chapter on overall considerations concerning taxation and a chapter on incidence, the eight following chapters are devoted to specific types of taxes, with two chapters each on the personal income tax and the property tax, and four chapters devoted respectively to business taxes, commodity taxes, succession taxes, and special benefit revenues. This section concludes with two chapters on the public debt: one on overall effects and policies and the other on the manipulation of maturities.

A fifth section on intergovernmental fiscal relations includes a descriptive chapter covering the various devices that have been developed in this field and a final chapter appraising these and various proposed co-ordinating devices.

In the execution of this excellent plan, the authors have turned in a very uneven performance. At times novel ideas are presented in a way that will appeal to the student and give him a genuine insight into the problems he is studying. But at other times the logical relationships become extremely muddy, and many of the statements, if not actually wrong, are bound to be confusing to the uninitiated. As a horrible example, the authors manage to turn the simple fact that gift taxes are paid from funds other than those in-

cluded in the gift into the following verbal maze: ". . . in determining the gift tax, the tax which would be due on a certain gift base is first computed, and then deducted from this base in determination of the actual gift-tax base. It is on this base that the actual gift-tax liability is computed" (p. 361). It may puzzle the student for a bit, also, to read that "where personal income taxation is involved, the question whether or not capital gains should or should not be taxed is largely irrelevant, since the receipt of the gain is definitely an addition to the economic power of the individual" (p. 250). The student who comes suddenly against the bald statement that "These [severance] taxes . . . are unquestionably shifted forward to purchasers, in whole or in part" (p. 306), might well like to have some supporting argument for this "unquestionable" truth, but nothing of this sort is given, either here or in the chapter on incidence.

More serious is the failure to bring together a complete and logical summary of the various aspects of full employment policy. The material is all there, either directly or by implication, but it will be the rare student who will get from this book alone any articulated conceptions of the relations between employment and the various policies considered. While the general effects of various possible combinations are discussed, and while in connection with extra-budgetary policies, the idea is developed that monetary policy alone may not be enough (p. 89), the elementary factors involved are not brought to a sharp focus. Indeed, in a summary on page 127, the influence of government fiscal policy on markets is attributed entirely to (1) "influencing the money supply" and (2) "altering the distribution of disposable income." This rather leaves out in the cold any effects that might be directly attributable to giving the individual, in exchange for his contribution to government funds, an engraved piece of paper called a bond instead of a printed slip called a tax receipt. Possibly the authors would maintain that the effect on employment of such a shift in policy would be negligible (or perhaps that no effect would result until the bond is somehow turned into money), but if so, Keynes would seem to have written in vain. Possibly in a field that has developed so recently and so rapidly as has fiscal policy, it is too much to expect that the complex whole should be developed from combinations of simple elemental parts, but until this is done fiscal policy will continue to be a confusing mystery to the average student. Until such a book is written, this section on fiscal policy may well be a fairly acceptable and possibly the best available introduction to problems of fiscal policy, though it will require careful supplementing from the instructor.

The authors do rather better with the older portions of their subject, but even here there are some rather awkward lapses. The welfare aspects of decisions to undertake government expenditure are discussed very thoroughly, both with and without full employment; but then we come to the remarkable statement that ". . . government . . . could conduct its operations in such a way that price and marginal cost were equated. All of its costs of producing a particular good or service would be covered if it followed this rule" (p. 153). Indivisibilities and decreasing cost industries are thus casually excluded

in a way which seems to indicate that if, as the authors claim in their preface, they were "influenced by our contacts with the works of Abba P. Lerner . . .", they nevertheless failed to grasp one of his basic ideas.

Specific taxes are handled rather well, and the authors present a more complete and rigorous analysis of the effects of excises on the allocation of resources than is usually found in texts of this kind. To one with a strong Methodist background, however, it is rather startling to find the repeal of liquor and tobacco taxes considered to have the same merit as that of margarine taxes: this sounds a bit like a faint echo of the Ames butter battle (pp. 347, 509, 510). There appears to be no mention of pyramiding: perhaps the authors do not believe in it, but even so this notion is sufficiently widespread to merit some attention. In the discussion of the property tax, we find Henry George and the idea of unearned increment dismissed with a brief mention (sic transit!) (pp. 420, 434). Nor in the discussion of classification of property is there any consideration of the derating of improvements. This reviewer wonders whether the time has yet come to write R.I.P. over this burning issue of the past century. Also noteworthy is the absence of any mention of capital levies or taxes based on net worth.

The final section on intergovernmental relations is on the whole about as good a discussion of this subject as could be expected in the space allotted. The index, however, proved a broken reed more often than not when used in attempts to locate specific discussions.

The authors have, by and large, made an excellent choice of what ought in general to be included in a book on the broad problems of public finance. But in filling the prescription they seem at times to have ventured beyond their depth. Sole reliance should not be placed on this book, either for self-instruction or for use as a text to be followed closely. But if the instructor is prepared to lead his class carefully around the many pitfalls, this book may prove a source of stimulating new ideas around which to develop discussions. Thus carefully used, this book is likely to be more relevant to present-day problems than less vulnerable texts which do not venture so far outside the traditional confines of public finance.

WILLIAM VICKREY

Columbia University

How Should Corporations be Taxed? A symposium conducted by The Tax Institute, December 6 and 7, 1946. (New York: Tax Institute. 1947. Pp. xii, 250. $4.00.)

This volume brings together papers covering a wide range of viewpoint and of competence presented by nineteen participants in a symposium on the Federal Corporation Income Tax held late in 1946. Such symposia are often difficult to bring to a sharp focus, particularly where the problem presents many aspects and provokes widely divergent points of view, and in spite of the well-conceived outlines of the program, the success of the symposium in this respect is not outstanding. There is a little of almost everything, but the student looking for a thorough analysis of problems of

corporate taxation will not find it here, though he will find among the papers two or three moderately well-rounded statements of specific aspects of the problem. On the other hand, a reader looking for a wide range of ideas and views will find here a fairly diversified sample.

Indeed, much of the book is not so much a symposium as a collection of debates. For example, on the basic question as to whether there is a place for a tax on corporations as such, we have answers ranging from an emphatic yes, chiefly on the ground that the corporation is a legal person with ability to pay (Matthew Woll), to various more equivocal positions such as: that the matter isn't actually as bad as it looks at first sight, needs correcting, but requires further study (Richard Goode); that in principle there should be no corporation tax, but the public demands one and the economy has become accustomed, or even addicted, to it, so that any withdrawal should be gradual (H. Christian Sonne); and a logically not very well sustained argument that the corporation should be taxed, but that dividends received by individuals should be exempt from the "normal" or lowest bracket rate (John Connolly).

In a section devoted to the taxation of small *versus* large businesses, Harold R. Bowen suggests an optional partnership treatment for corporations meeting certain specifications as a way of easing the way for small corporations to develop and secure capital for expansion, as well as making some progress towards the abolition of the corporation tax. Keith Butters, however, brings forth some interesting figures to show that such an option might not in practice provide any real relief for small businesses in any but a very few cases, and suggests again that a dividend credit or exemption from the initial bracket rate be allowed to stockholders. Alfred Buehler examines proposals to promote competition and control monopoly by means of taxation and concludes with regret that the suggestions appear unworkable.

In a third section devoted to considering certain special problems of the taxation of corporations, Thomas N. Tarleau goes into the woes of the taxpayer confronted with the threat of assessment with penalty surtaxes for undue accumulation of profits, but without coming to any conclusion as to what should be done other than to advise the taxpayer to watch his step. M. L. Seidman examines the proposition that the present tax discriminates against bond financing, and finally suggests as his preferred remedy the same exemption of dividends from the bottom rates of the individual tax as was advanced by Connolly and Butters. Methods of extending the annual accounting period, including averaging and carry-back and carry-forward of losses, are treated in a paper by Norris Darrell, with carry-foward favored as the preferred solution by reason of the needs of new businesses, but with no mention of the countercyclical properties of carry-backs. W. L. Hearne makes out a defensible case for more liberal depreciation and charging-off of capital outlays, coupled with an interesting but self-defeating claim that taxpayers will so misjudge future tax rate trends as to hang themselves with the extra latitude anyhow so that revenues would increase rather than

diminish. He also argues for the continuation of the special extra depletion allowances for extractive industries, which sounds more like special pleading. Maurice Austin puts in an argument for greater freedom in making consolidated returns, the elimination of the tax on intercorporate dividends, and more adequate consideration of intercorporate relations in the assessment of the penalty surtaxes on personal holding companies. And Mitchell B. Carroll presents an exposition of certain technical difficulties in avoiding international double taxation on companies engaged in international trade, but without much in the way of specific recommendations.

A fifth section, devoted to discussions of the effects of the tax system upon business enterprise includes two polemics blaming taxes for almost all our economic ills (W. L. Hearne and Roswell Magill), another polemic absolving income taxes from all guilt and in fact crediting them with preserving purchasing power and markets from collapse (Stanley H. Ruttenberg), and a rather entertaining discussion of the subject in terms of *Through the Looking Glass,* with some suggestions as to how to minimize the adverse effects of the tax structure (Richard Musgrave). The volume winds up with a final section containing a diatribe against the use of taxation for any purpose but the raising of revenue (H. E. Humphreys, Jr.), followed by a defense of the use of taxation for cyclical stabilization and the redistribution of income by Leon Henderson that, while only partly relevant to the main topic under discussion, has a combination of vigor and cogency not found in the contributions of those with a better claim to be considered experts in the field of taxation.

In short, this book by no means provides a systematic or judicious coverage of the whole field of corporate income taxation. Indeed, there is virtually no discussion of possible changes in the treatment of capital gains in the hands of individuals, nor of various alternative types of undistributed profits tax, in which two areas this reviewer believes that the essential keys to the solution of the problem are to be found. Even as a source of occasional nuggets of wisdom or new ideas, the assay is disappointing. Possibly the most valuable features of the book are the classified bibliography of some 250 items, the brief summary presented by James W. Martin in his introductory remarks, and the discussion by Roy G. Blakey of the general features of the various postwar tax plans that have recently been proposed by various interested groups.

WILLIAM VICKREY

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Money and Banking; Short-Term Credit

Monetary Reconstruction in Belgium. By LEON H. DUPRIEZ. Published for the Carnegie Endowment for International Peace. (New York: King's Crown Press. 1947. Pp. viii, 88. $2.25.)

In his presidential address at the last meeting of the American Economic Association, Dr. Goldenweiser exhorted American economists to descend

from their ivory towers in order to come to grips with the problems of the State. What he had in mind is illustrated by this little book by Leon Dupriez, at the same time "the thinker and the doer."

Professor of economics at the University of Louvain and author of books on general economic theory, Leon Dupriez was one of the architects of the Belgian franc devaluation in 1935 and of the Belgian monetary reform in 1944. Twelve years ago he was given the task of calculating the extent of devaluation necessary to bring the Belgian price level into parity with the British and American price levels. During the last war he became a leader of Belgian resistance, working with his comrades (as Professor Condliffe reminds us in his preface) "in close but secret liaison with the Belgian Government in exile in London, and through it, with the British and American Governments." The Belgian devaluation of 1935 was a "remarkably successful experiment" (Condliffe); but what judgment can as yet be formed as to the success of the Belgian monetary reconstruction?

Professor Dupriez offers in his book all the essential elements for understanding the scope and the technique of the Belgian monetary reform. This in itself is a distinct service to economists all over the world, for to collate and appraise these basic data is a very intricate undertaking, requiring not only access to original legislative, political and economic documents, but also an intimate knowledge of Belgium. In this respect alone Dupriez' book, so concise and logically woven, is invaluable. But altogether apart from the wealth of data collated, the author so guides us in the labyrinth of the Belgian monetary reconstruction as to enable us to understand the reform and assess the conditions for its success.

First of all, the drastic and instantaneous blocking of monetary circulation on the morrow of Belgium's liberation did not entail a deflation in the wage and cost structure. In this sense the Belgian experience of 1944 is essentially different from the only comparable historical precedent—the Czechoslovak deflation of 1920. It was carried out under strongly expanding conditions, not on the eve of world economic crisis; it was effected at a moment when the Belgian economy was at a standstill and had to be readjusted to the new needs of liberated Belgium and her Allies; and it was part of the inevitable shift from the wartime price system of German Europe to that of England, key country to Belgium. Briefly, Belgium seized this "unique opportunity to deflate" to bring the monetary circulation at a stroke into relation with wages and prices. The wage level, besides being the only economic fact readily ascertainable, was the one of greatest political importance. Thus any deflation in factor costs, the only element that really mattered, was excluded; whereas further inflation was opposed.

The second basic consideration that emerges from Dupriez' book is the strategic role that the exchange rate plays in the Belgian economic policy. A small country lying in the center of European communications, Belgium has a price system that is highly dependent upon its relations with those of neighboring countries, especially Great Britain. With a view, therefore, to ensuring the exchange rate of 176.6 francs to the pound sterling that the

Belgian government in London had negotiated with the Allies, it was indispensable to contract the Belgian inflation to that obtaining in England. The will to correct the purchasing power disparities between the two countries therefore motivated the Belgian currency reform quite as much as the desire for internal monetary and fiscal order.

Another pronounced impression from the book is the universal acceptance in Belgium of the principle of the monetary reform, together with an agreement on most of the administrative measures that were taken to effect it. In contrast, however, there were wide differences of opinion as to the extent and scope of monetary and fiscal controls. A number of examples are cited.

Dupriez's book also enables us to assess the conditions for the success of the reform. One condition, as the author rightly points out, was that the Belgian government was able to import considerable quantities of food and raw materials because of the gold and foreign assets obtained as a result both of the American, Canadian and British spending in Belgium when that country served as the main military base for the last attack on Germany, and of the favorable balance of payments of the Belgian Congo. Food bought to satisfy the primary needs included processed American goods, which could not be purchased by countries in tighter straits on account of the relatively high import prices. Since, except for a short period early in 1946, the Belgian commercial policy was not unduly restrictive, these imports of food delivered a decisive blow to the black market and ensured a reasonable stability in the cost of living.

The second condition of success of the reform was the government's price policy. But "the reason for this success lies in the fact that the Prime Minister went along with the spontaneous trend of prices and simply systematized and hastened the trend." Serious maladjustments are, however, reappearing in the Belgian economy, since the rise in the price-cost structure has progressed "beyond what is reasonable in the long run." International prices are still dislocated enough that a country with high costs can obtain a sufficient volume of trade even if not always through the normal channels. "The country must therefore face the fact that there should be a downward readjustment of its internal price-cost structure to relate prices and wages to normal costs of production."

The third condition of the success of the reform was an orderly re-expansion of the currency. Dupriez relates the profound concern the Belgians felt when the country was faced with new uncontrollable forces of monetary expansion because of the continuation of the war, the heavy expenses of the Allied armies, the supplying of Belgium's Allies under the terms of the mutual aid and lend-lease agreements, and the financing of the deficit of the Belgian government's budget proper. "Part of the expansion was according to plan (defreezing of frozen accounts), but re-expansion of the currency took place very fast and went beyond expectations." As to the future, the most powerful expansionary forces are the need of private credits in the reconverted economy and the demands facing the Belgian government for the indemnities for war damages. To sum up, "after all our efforts, the present monetary posi-

tion is only more or less in line with that of the Anglo-Saxon countries, in matters of long-term importance; short-term problems are still more numerous and more complicated." In the light of this analysis, the successive increases in the discount rate of the National Bank of Belgium, the rise in the long-term interest rate, and the restrictive credit policy can be looked upon as signs of a determined will to keep under control the re-expansion of the currency and thus safeguard the benefits of the monetary reform.

The Carnegie Endowment for International Peace, which published Dupriez's book, has enlisted the services of economists in other European countries to make surveys of their monetary and economic situations comparable with this study of Belgium. It is only to be hoped that these studies will be forthcoming very soon since the full extent of the difficulties and dangers that confront European reconstruction is not always sufficiently understood. However, it will not be enough, I submit, merely to have reports on monetary conditions in a number of individual countries. What we need are not only case studies, but a comparative analysis and overall appraisal of the European monetary reconstruction.

M. A. KRIZ

New York, N.Y.

International Trade, Finance and Economic Policy

World Economic Problems—Nationalism, Technology and Cultural Lag. By C. ADDISON HICKMAN and associates. (New York and Chicago: Pitman. 1947. Pp. ix, 400. $4.00.)

To discuss effectively within the compass of a single book such a broad and complex subject as world economic problems is a most difficult undertaking. Too often the net result is either vague generalizations or a bewildering and well-nigh meaningless mass of detail. Indeed, this field of inquiry is so enormous that it is to be doubted whether one person can possibly have sufficient intellectual equipment to master all of the ramifications, particularly since a knowledge of the historical antecedents is essential. Even where several specialists work together in analysing the ills of the world economy, the difficulty remains of achieving a convincing overall frame of reference.

The present volume has been written largely by Professor Hickman, but ten associates at the State University of Iowa collaborated in the project by preparing preliminary drafts for several of the fourteen chapters. Rightly convinced that world disorder cannot be studied solely from the economic viewpoint, the author has included a discussion of social and political factors. The present world crisis, we are told, is one in a long series of crises, each resulting from the failure to effect the social readjustments required by the development of modern science and technology. This theme is stated at length in the first chapter. The concept applied is that of "cultural lag," a theory which W. F. Ogburn and others have expounded primarily with respect to domestic socio-economic problems. It is contended that the spread of

industrial technology to less developed areas and the marked improvement of transport and communication facilities have created what is in effect an international economy—a world community. In the meantime, however, no common cultural pattern or system of values has been evolved, with the result that "the readjustments involved in learning to live together as members of a 'family of nations' are profound and disturbing" (p. 15).

Two factors are cited in explanation of the failure to overcome the frictions that "produce recurrent economic and political breakdowns, and resultant wars" (p. 19). The first is ethnocentrism or "group self-centeredness." This is reflected in race prejudice, nationalism, and so on. The second factor is what the author describes as "the continued existence of feudalism," by which is meant "a certain set of class relationships together with their supporting habits, attitudes, and ideologies" (p. 20). Those who think that "feudalism" ended with the advent of an industrial economy are reminded that, on the contrary, "many of the old class habits and attitudes persisted and a new type of feudalism emerged, namely industrial feudalism" (p. 23). In so many words, it is argued that, relatively, the lot of the laboring classes today is not much better than that of "the serfs of old." Wages reflect the relative abundance of labor service; many workers, like serfs, "may hover close to the margin of subsistence, frequently even below a true efficiency level" (p. 25). However, "the capacities of the feudal aristocrats [sic] for increased consumption of new goods and services have ultimate limits," and thus "an excess or surplus capacity" is created, which is "often either drained off in war or wasted through unemployment" (p. 26). In any event, this so-called surplus "cannot and must not be used" by the feudal barons to provide economic equality.

The author concedes that "in some industrial nations feudalism may be and often is relatively weak," but even in these countries—none is identified—a prolonged depression may cause them to become "bellicose and aggressive." If, therefore, peace and prosperity for all are to prevail, ethnocentrism and feudalism must be eliminated; otherwise, "modern science and technology will continue to be sabotaged and perverted, the bulk of mankind remaining at a very primitive level of existence" (p. 29).

In Chapters II and III, which comprise the remainder of Part I, the evolution of modern nationalism and the impact of world population trends are discussed. In Part II, entitled "The Impasse," the themes of cultural lag and feudalism are further developed in terms of a world economy distorted and disrupted by the breakdown of foreign trade, maldistribution of raw materials, cartels, population pressure and unemployment. Among other things, the plight of the underdeveloped areas is considered. The low level of purchasing power in colonial areas is ascribed to forced concentration on the export of raw materials, for which capitalists in the industrially advanced nations are held responsible.

While it is no doubt true that there have been instances in which industrial development in raw-materials producing areas has been more or less deliberately retarded, it is also a fact that not all the people of the world

have the same impelling urge to become industrialized, as is true of the western nations. A distinguishing feature of the economic growth of the latter has been their spirit of enterprise—something which the less developed countries have generally lacked until recently. Moreover, as the author observes at another point in the text, "one should be extremely hesitant in forming judgments of welfare by imposing the standards of one culture upon the consumption in areas with differing patterns" (pp. 229-30). In other words, one cannot make a meaningful comparison between a peasant in India and a farmer in the United States, which is of course much more highly developed than the Indian economy. However, this is what the author appears to do in an earlier chapter (p. 149), when he ascribes the poverty of a large part of the world to the lack of purchasing power, citing the Indian peasant as an example. A more correct explanation is the absence of overall productive power, which in turn arises from several factors, and not merely any concerted drive on the part of the highly developed nations to maintain a preferred position for themselves.

In the final section, the author devotes five chapters to a survey of the functions and growth of world organization, including the United Nations. Again it is noted that the great technological developments of the past century have created the basis for a "planetary economy," but cultural lag blocks the road to world peace and prosperity.

It is perhaps well that in these dismal times there should be some among us who bemoan the fact that the progress of mankind to date has not brought about a state of perfectibility. May it not, however, be said that actually the lot of the average person has been so improved since the Middle Ages that it is hardly appropriate to define the present socio-economic organization of society—in the western world at any rate—as "feudalistic"?

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New York, N.Y.

Essai sur l'Évolution du Commerce International—les Théories, les Faits. By B. V. DAMALAS. With a foreword by Gaétan Pirou. (Paris: Presses Univ. de France. 1940. Pp. xi, 462. 60 fr.)

This doctoral thesis, written at the École Pratique des Hautes Études, was published in the economic series "Nouvelle Bibliothèque Économique" that was started by the late Professor François Simiand. It apparently appeared before the fall of France, and there is only a passing reference to World War II. The book will be disappointing to most American readers, no matter what their views may be on the theoretical issues or current problems in international economic relations. It is marked by two features that are found in so much French economic writing of recent decades: a lack of familiarity with the main trends of economic thinking outside of France, and a dialectical approach that possibly is the result of French economics being so greatly under the influence of French legal education. Much of the book reads not like an analysis of an economic problem, but like a dispute between the author and a group of economists, among them von Mises, Lionel Robbins, and Hayek, whom he has chosen as adversaries.

The author devotes about 150 pages to a review of the international trade theories of Adam Smith, Ricardo, John Stuart Mill, List, Henry Carey, Simon Patten, and Manoilesco. His own subsequent analysis of international trade emphasizes two points: the fallacy of the classical view that international trade can be interpreted in terms of barter, and the limitations of the concept of economic equilibrium. With these general criticisms most economists would agree, but few American economists would go to the extremes that the author does. His criticism of the idea of comparative costs bogs down in a confusion of real costs and monetary costs (pp. 239-54, 403), and his reaction against the classical idea of an easily attained equilibrium leads him to the view that price levels and exchange rate fluctuations have little if anything to do with the state of a country's balance of payments, even in the long run (pp. 292-93, 382-84, 409, 421-22). His conclusions are favorable to high tariffs, but there is no integrated analysis, and the infant industry argument (p. 409), the menace of overproduction and unemployment (pp. 373, 383, 421), and the need of weak countries to prevent their economic life from being ruined by strong countries (p. 406) are presented indiscriminately. There is hardly a hint of any relation between wages, productive efficiency in various lines, and specialization. At times the analysis suggests the American pauper labor argument in reverse, and American protectionists who feel that the American standard of living would be menaced by foreign competition in the American market would be surprised at Damalas's thesis that the strength of the American economy means that other countries can prevent ruin to their industries and their agriculture only by a high tariff against American goods (pp. 340-41, 406).

The book has almost no historical or statistical material, and the analysis is discursive and repetitious.

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Public Control of Business; Public Administration; National Defense and War

Pricing Problems and the Stabilization of Prosperity. Addresses by Senator R. E. FLANDERS, J. K. GALBRAITH, E. S. MASON, A. C. NEAL, C. F. PHILLIPS and W. WRIGHT at the second 1947 Economic Institute of the Chamber of Commerce of the U. S., September 18, 1947. (Washington: Chamber of Commerce of the U.S.A. 1947. Pp. 85. $1.00.)

This little pamphlet, with introductory remarks by Everett Lyons and Earl O. Shreve, president of the U. S. Chamber of Commerce, contains six papers presented by J. K. Galbraith, E. S. Mason, A. C. Neal, Wilson Wright, C. F. Phillips, and Senator Ralph E. Flanders at the second 1947 Economic Institute of the Chamber of Commerce, in Washington, D.C., on September 18. As observed by Mr. Shreve, businessmen generally admit some responsibility and at least some degree of power to help sustain prosperity. Through the Institute it was intended that economic analysis

should be applied to the problem, more specifically, to the questions "Can we maintain prosperity?" and "How can the businessman best contribute to sustained prosperity?"

It is uncertain, of course, how specifically the attention of the participants had been previously focussed on this objective. To review the papers from this viewpoint, therefore, may well be as unfair to their authors as it is selective with respect to their offerings. Within the space allowed, however, it seems the best approach. The contributions of the symposium may be summarized briefly in the following statements:

1. Neither postwar experience nor economic theory support the dogma that our economy is an "autonomous, self-adjusting system" or that there is any normative tendency in our postwar price level. If we would allay discriminatory losses inherent in inflation and if we would gain a reasonable approximation to economic stability, we must seek to *create* a "flexible combination of competitive and social restraints and of competitive and social stimuli." Thus, the outcome rests on our ability to devise and initiate policies, both public and private, appropriate to the purposes to be gained. (Galbraith)

2. No matter how high and constant the volume of employment, high-level stability in any meaningful sense is incompatible with an annual rise of 25-30 per cent in wholesale prices. Thus price stabilization is an essential aspect of our social objective. (Mason)

3. Price stabilization, however, follows neither from monopoly nor from competition but from a peculiar blend of both in which price policy is governed by the expected reactions of rivals and by a lively sense of public responsibility fanned by a militant public opinion. The dynamics of inflation in the current situation is discovered in the price-cost impact of freely competitive markets for products and the growing monopoly power of labor unions, freer than corporations from the restrictions of law and public opinion. (Mason)

4. Neither fiscal writers nor those who emphasize proper cost-price-profit relations have much to offer toward the solution of the problems of economic stability. The former neglect to show how demand can be maintained without dynamically affecting wage rates and prices; the latter are unable to predict over a short period the effects of any *particular* pattern. (Mason)

5. Another look at the data relating to changes in the average unit margins (overhead plus profits) over prime costs for industries classified according to degree of concentration (percentage of output accounted for by the four largest producers) during the period 1929-37, suggests that the more concentrated industries more successfully maintained the stability of their unit margins against both decline during depression and rise during inflation. This further suggests that the price policies of large corporations may contribute to cyclical instability *unless* they are willing and able to "stabilize their investments in capital goods—or better still, follow a counter-cyclical policy." (Neal)

6. Only the managers of the most efficient companies are in a position to

establish prices and profit margins on investment for themselves; others must price in line with established prices even though out of line with their costs. Thus it rests with these most efficient managers to establish "economic margins" and to adapt their prices quickly to changes in cost so as to minimize general economic fluctuation.[1] (Wright)

7. If we are to maintain high-level prosperity, we need more competition, both price and non-price competition of the sales promotion type. Monopolistic practice, not non-price competition, is the threat to price competition. (Phillips)

8. The essential problem in the current situation is to prevent competitive prices from rising faster than wages or, in the area of administered prices, to prevent a sellers' market in labor from bringing expansion of wages beyond the rise of productivity. Negotiations affecting this "wage-cost-price-cost of living" spiral in basic industries are so vital to the maintenance of high-level stability that they are *not* a private affair. While a narrow consideration of individual or group advantage by either labor or management will mean inevitable failure for our high-employment objective, government controls of wages, prices and profits will mean an equally unpalatable controlled economy. In this dilemma, Senator Flanders turns to education of labor and management in responsibility for the welfare of the country. He seeks "a vital statesmanship in industry and organized labor, working together to save all"—a state in which "each act . . . [will be considered] . . . on the basis of its effect upon society if followed by all."

Perhaps never before in the history of this country have the people as a whole been so consciously aware and so determined to avert the dangers of inflation. Never before have our business leaders, individually and in groups, been so impressed with a sense of responsibility for the maintenance of high levels of productive employment. Both convictions are new and radical. Experience and professional theorizing have drawn around business fluctuation an aura of inevitability. Until now, individual action has been assumed to be unimportant. It is natural that economic analysis should be called upon under these circumstances; and it is natural, too, that economists should be diffident in so unrehearsed a role. They know there is no single formula, no white rabbit to be pulled out of anyone's hat. But this is the challenge. If economists accept it, they must face the issues squarely and state them clearly.

One issue, partly stated by Galbraith, is somewhat paradoxical. Individual self-interest, checked and modified by the self-interest of others, is the core

[1] As an explanation of price determination, this is a very dubious generalization. It is extremely difficult to extract from Wright's long and detailed discussion of pricing situations confronting business managers, conclusions relevant to the approach of this review. Except for the explicit denial that managers of individual enterprises can do anything to correct inflationary forces in a sellers' market (a moot point), his recommendations are vague. He urges "economic" profit margins, distribution of technological gains through price reduction rather than through wage increases (except as labor contributes to such improvements), ready adjustment of prices to costs, and avoidance of combinations to fix prices.

of vitality in a private enterprise system. Group welfare is a by-product of competitive striving for individual advantage in productive opportunities. In such a system, excepting only the protective rules of the game imposed by the state, "social responsibility" of individuals has little meaning—it is governed by the rewards and penalties of the market place. But, once it is recognized that the achievement of our social objectives requires a conscious formulation and implementation of policies directed to such ends, this concept of "social responsibility" of individuals is basically altered. To the extent that responsibilities are determined and *imposed* by the state, private enterprise is supplanted by state-controlled economy. The only practical alternative is to define desirable private policies within a framework of public policies, and to explore or provide *inducements* for consistent action.[2] Whether such an approach will prove economically and politically feasible is far from certain, but it is on the success of such an effort that the character of our future economy will depend as long as we are committed to a high-level employment goal.

This symposium was, actually, a prolegomenon to the discussion which Mr. Shreve apparently sought. The limits of individual responsibility were not explored; the criteria of desirable private action were not analysed; the existing inducements to such action were not assayed; and the possible strengthening of such inducements by appropriate government action was not broached. The economist must push his thinking beyond descriptive analysis and risk his reputation in the more rugged field of policy formulation.

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The Beginnings of O.P.A. By WILLIAM JEROME WILSON, JOHN A. HART and GEORGE R. TAYLOR. (Washington: Supt. of Docs. 1947. Pp. iv, 246. 50 cents.)

The Consumers Advisory Board of the National Industrial Recovery Administration, of which I had the honor to be the executive director, experienced continuously the greatest difficulty in getting the key policy-making officers of that organization to read what it considered its extraordinarily well reasoned and documented pronouncements. One key reason seemed to be that these officers were so busy making policy decisions and mistakes that they had no time for reading about how mistakes might possibly be avoided.

In an effort to overcome its frustration, the Consumers Board staff de-

[2] In a society where it has not proved possible generally to endow even our public officials (a relatively small group) with an effective awareness of general public welfare, it is mere idealistic rhetoric to appeal to the objective social-mindedness of business and union leaders (not to mention workers, farmers and consumers generally) to negotiate their private interest in terms of the greatest good of society as a whole. Even discounting the pressures of immediate individual and group interests which would jeopardize such an objective leadership, this reviewer, for one, would deny the competence of such haphazardly selected principals to interpret the public interest.

veloped the practice of marking certain of its more esteemed policy suggestions "Confidential" in very imposing letters (they were typically about as confidential as the front page of the *New York Times*), underlining the first sentences of the paragraphs on the first page in red ink (it had been observed that key policy makers rarely read beyond the first page of a memorandum), attaching a large "Rush" sign to the paper, and then dropping it in the hall where an important policy-maker was likely to see it in passing, be lured into picking up such an obviously important document and taking a peek. On several occasions the strategem worked, and ideas developed by the Consumers Advisory Board entered the consciousness of key policy makers who would never have been reached by orthodox methods of presentation.

In reading *The Beginnings of O.P.A.*, I looked for evidence that the authors or their editors had considered the problem of impressing their conclusions about unfortunate errors and omissions in the beginnings of O.P.A. upon what will surely be the rushed and much preoccupied minds of builders of future O.P.A.'s. I could not find very much either in the sharpness of the conclusions presented or the underlining of them. This I counted a weakness of the book—"the first of the narrative and analytical studies in the O.P.A. series of Historical Reports on War Administration"—since my reading of the various official statements of purpose of these studies indicated that one major purpose was to flag pitfalls for those traversing the same general territory in some future emergency. Having noted as much, I hasten to add that this defect will, of course, detract little or nothing from the great usefulness of the volume for a sophisticated audience such as that comprising subscribers to the *American Economic Review*.

In its account of the beginnings of O.P.A. the volume is divided into three parts. The first and largest, which comprises about half of the book, is a story of the background and enactment of the Price Control Act of 1942, written by William Jerome Wilson. The second, written by John A. Hart, deals with the development of the Price Stabilization Division of the National Defense Advisory Commission, a precursor, one step removed, of the O.P.A. The third part, written by George R. Taylor, is an account of selective price control which, over the period June, 1940-April, 1942, preceded general price control by O.P.A. Full responsibility for the statements of fact and interpretation was given to the various authors, who seem to me to have discharged it well. Who discharged the overall editing responsibility I do not know, but at any rate he left undone things that might have been done, with the result that there is a considerable amount of unnecessary duplication of material.

Harvey C. Mansfield, chief of the O.P.A. Policy Analysis Branch, who brought these three parts together to make a volume, indicated in his foreword that he found the principal unifying element in the light they throw on "the theme, so fundamental in the traditions of the Republic, that half at least of the battle for the realization of governmental goals in the national

welfare is a task of persuasion." That, in my view, is a well perceived *leit motif*. As they carry major parts of the story of price control from its pioneer beginnings with the creation of the National Defense Advisory Commission in May, 1940 through statutory authorization by the Price Control Act of 1942, each segment of the book, in its own way, illuminates the crucial part played by persuasion—both by people and events. In a less cheerful vein the volume as a whole also seemed to me to illuminate the proposition that a government such as ours must be konked on the head with a full-fledged emergency before having an opportunity to acquire the authority, too late, to handle it with anything like full effectiveness. Even so, I am not tempted to swap it for a more tidy and perhaps more timely dictatorship.

Many subsidiary lessons are also suggested, if not pounded home as they should be in order to have much of any chance of being heeded in the hurly-burly to which they will probably have relevance. One of the most important is that the politicking did not stop even when the shooting in a desperate foreign war started. This proposition was introduced, at least obliquely, by the notation of the long lag behind price control of the beginnings of wage control. There were, no doubt, some essentially economic reasons for this. But there is little or no room for doubt that a major reason, if not the most potent reason, was political. The lag in wage control and the administrative divorce of it from price control not only greatly reduced the effectiveness of wartime price control but also introduced postwar economic complications, the full magnitude of which is still to be determined. Relative to its importance as a phase of the beginnings of O.P.A., the schism between wage and price control is almost completely neglected. So too, in my view, is the fumbling in the handling of farm prices as compared with other prices, which also introduced a train of unfortunate developments which is still running its destructive course.

There were also brilliant strokes in the beginnings of O.P.A. Of these, I suspect that none was more notable than the devising of a means to prevent the entire O.P.A. operation from being tied up while specific regulations were being tested in the courts. As I understand it, the master architect of this arrangement was David Ginsburg, first Chief Counsel of O.P.A., and it is gratifying to find his work recognized. Also, there is what seems to me entirely proper recognition of the extremely high order of both technical and public service rendered by Leon Henderson, first O.P.A. Administrator, in leading and lighting the way to the enactment of the Price Control Act of 1942, and putting in place an organization to get it in relatively effective operation. "It is a remarkable fact," noted by Mr. Wilson, "that after the agency was set up it did not undergo, as did many of the other war agencies, a really major reorganization."

If not reorganized, however, the O.P.A. continued throughout its existence to be under attack from many quarters, as frequently as not because of the effectiveness rather than the ineffectiveness with which it carried out

its thankless tasks. Consequently, most of those loyally associated with O.P.A. tended to acquire the defensive enthusiasm of the beleaguered. Here and there in the volume I thought I detected traces of this enthusiasm, though not in Mr. Taylor's account of selective price control, which seemed to lay bare its weaknesses admirably. This understandably defensive attitude which I thought I detected here and there also might account, in part, for what seemed to me the much too limited view of the total economic field on which O.P.A. was deployed and embattled. Also the fact that the authors were an integral part of the O.P.A. organization might well result in a slightly provincial point of view. However, as government functionaries the authors seemed to me to do an extraordinarily resourceful and courageous job in pumping vitality into their chronicles.

Since the authors were members of the O.P.A. staff, *The Beginnings of O.P.A.* will not, of course, be accepted by many as a definitive account of its subject matter. For those who care to work toward such an account, however, it provides a large volume of well-organized and relevant information. In this regard it stands in sharp contrast to the situation after World War I when the record of wartime economic administration was pretty well lost in the postwar shuffle. Even if no further account of those phases of the beginnings of O.P.A. with which the volume deals is produced, we will not be badly off, both absolutely as well as relatively, thanks to these authors and the general designers of the studies of which theirs is one.

DEXTER M. KEEZER

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Central Planning and Control in War and Peace. By SIR OLIVER FRANKS, K.C.B. (Cambridge: Harvard Univ. Press. 1947. Pp. 61. 75 cents.)

The story of Sir Oliver Franks' rise in the British Civil Service during the war is now well known. In a few years, the young professor of moral philosophy from the University of Glasgow rose to become Civil Service head of the Ministry of Supply and one of the most influential sub-cabinet members of the British government. Although he has returned to academic life as provost of Queen's College, Oxford, he has continued to serve his government—most recently as British delegate to the Committee of European Economic Co-operation organized in connection with the so-called Marshall Plan for aid to Europe.

The present volume comprises three lectures delivered at the London School in February-March, 1947. In these lectures, the author draws on his wartime experience in order to suggest the kind of economic planning and control which Britain should adopt in the postwar period. The lectures are well written; the tone is dispassionate; there are many acute observations on the weaknesses of large-scale bureaucratic organization. But there is also a large amount of vagueness in the argument and an uncomfortable degree of wishful thinking and economic naiveté.

The gist of his argument can be briefly stated. Particularly because of the

export problem, some minimum of central planning and control is inevitable in the United Kingdom. Export and import programs need to be set by government, and these programs presuppose "a division of the expected [national] product between home and foreign markets" (p. 25). Yet wartime methods of compulsion cannot be used to implement the government's overall plan. Compulsion means bureaucratic inflexibility and the destruction of private initiative. Government and business must develop radically new conceptions of their roles and responsibilities in economic life. The government must construct the general plan, set the goals, and then "must so present its policy and programmes that they are accepted as the right answer in the circumstances for a nation that will be master of its fate" (p. 37). The business community must learn to put the interests of the nation first, as formulated by the government's master plan. If business meets the challenge, and government provides the leadership, unity of purpose becomes possible in peace as in war, but the peacetime unity is effected through co-operation instead of compulsion.

And here the author leaves us! Is the unity of purpose required in peacetime possible? Even Sir Oliver recognizes that it would take "an almost revolutionary change in traditional habits of thought" (p. 42). With such unity of purpose as is possible, how are economic plans, particularly the required allocation of the national product between the domestic and export markets, to be implemented? By definition, government intervention is necessary. If so, how are the detailed controls to be avoided? If all industry is not to be nationalized, profits and solvency must continue to guide businessmen. How are these criteria to be reconciled with the government's plans? Government manipulation of key aggregative variables—group price levels, incomes, domestic investment, etc.—can do a good deal to effect such a reconciliation, provided the government avoids the critical mistake of itself having conflicting objectives. Sir Oliver does not discuss this range of considerations. He does not even mention the role which monetary and fiscal policy might or should play in the kind of planning and control that he wants. Yet the skillful manipulation of the crucial aggregative variables is a *sine qua non* for the avoidance of detailed controls over individual business decisions. Even then, given Britain's plight, a residue of quotas, licenses, and other forms of quantitative controls will certainly be necessary. Sir Oliver offers no alternative except the hope for "co-operation" and the reluctant suggestion (p. 59) that government plans be implemented through national and regional associations of business firms.

I suppose that everyone except the "liberals" of the Hayek type agrees that Britain must resort to a large amount of "central planning and control" in the years ahead. But if desired objectives are to be achieved, plans will have to be clearer, the issues will have to be faced more frankly, and the methods of control will need to be more sharply defined than they are in these lectures.

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Investigation of Government Patent Practices and Policies. Report and recommendations of the Attorney General to the President. Vol. I, *Final Report Proper;* Vol. II, *Monographs on Governmental Departments and Agencies;* Vol. III, *Monographs on Non-Governmental Organizations, Foreign Countries, Legal and Historical Studies,* and bibliography. (Washington: Supt. Docs. 1947. Pp. vii, 146; 508; 328. 35c.; $1.00; 65c.)

This report presents the most intensive and comprehensive study yet made of the patent practices of all kinds of employers. The chapter headings of Volume I include the patent aspects of government research, inventions made by government employees, rewards to employees, inventions made by government contractors, administration of government-owned patent rights, foreign rights, secrecy and uniform policy and procedure. Volume I is based upon the nineteen monographs in the other two volumes. Volume II contains fourteen monographs pertaining to the patent practices and policies of the fourteen government departments and agencies most concerned with the problem. Volume III presents five other monographs—the relevant principles of law, prior studies of this and related subjects for a period of about 50 years, governmental patent practices and policies of the ten most industrialized foreign countries, patent practices of more than fifty educational and nonprofit organizations in the United States, and the patent practices of some of the leading industrial laboratories in the United States. An excellent bibliography appears at the close.

The study seeks an answer to the inquiry, "What disposition of patent rights as between the government, its employee, or contractor, and what use of patent rights owned by the government, will best serve the public welfare and stimulate the progress of science and the useful arts?"

The report concludes that inventions financed with public funds should be solely for the public benefit and never a private monopoly because ownership of patent rights is not a necessary or proper incentive to the great majority of government scientists and technicians. Such rights lessen cooperation, encourage secretiveness, unduly emphasize patentability, provide an unequal form of reward, and permit either suppression or restrictive use by the public. The only government agencies which still contend that patent rights must be left to the employee in order to induce him to invent, are the former War and Navy Departments and the Federal Works Agency. Several other agencies, however, still permit their employees to retain the commercial rights to their inventions.

The recommendation which follows is that the government should obtain all rights to inventions made by its employees during working hours, or with a substantial contribution by the government in the form of equipment and materials, etc., or in the performance of their official functions. If the contribution of the government and the relationship between the invention and the employee's official functions are clearly insufficient to justify his assignment to the government of all rights in the invention, the ownership of the invention should be left to him provided he gives the government a nonexclusive, irrevocable, royalty-free license and exploits the invention diligently

or grants non-exclusive licenses at a reasonable royalty to all applicants.

The previous paragraph indicates the content and spirit of the other findings, conclusions and recommendations. Government rewards to its employees should be no greater for a patentable invention than for other types of scientific or technological contributions. Recommendations concerning inventions by government contractors are practically the same as those concerning inventions by employees. In administering government-owned patent rights the basic policy should be to make them available to the public by dedication or by royalty-free, non-exclusive licensing. Further, if developmental or pilot-plant operations are necessary to establish the practicality of a promising invention, the "Government Patents Administrator" may recommend such projects to the appropriate agency or to Congress for adoption. In addition, he should submit to the President for approval a program to encourage and sponsor the use of government-owned inventions by small and new business concerns.

If the government acquires a license under an invention in the United States, it should also acquire a similar license in foreign countries. If it acquires title in the United States, it should also have the ownership of the foreign rights. If requested by the government, employees and contractors should not disclose their inventions to any unauthorized person or assign any rights in them. The report, quoting from President Roosevelt's letter inaugurating the study, recommends the "need for a uniform Government-wide policy with respect to the ownership, use or control of inventions made by employees of the Federal Government, or by employees of Government contractors in the course of performing contracts financed by the United States."

A Government Patents Administration should be established by the President, headed by an administrator and assisted by an Advisory Patents Board composed of representatives from fourteen government agencies concerned with patent rights and of four representatives of industry, labor, education and the consuming public. It would administer a uniform patent policy to be established by the President.

Of particular interest in academic circles is the account of the patent practices and policies of forty educational institutions. The outstanding cleavage in their policies is whether or not they control patents for the purpose of producing income. Most of them hold and administer patents to produce income for further research and other purposes. In about one-half of them, patent rights in inventions made by members of the staff must be assigned to the institution rather than retained by the inventor. Any business concern which finances a research project obtains any patent rights which may result. The patent policies of non-profit research organizations are similar to those of universities. Some nations, particularly England and Canada, have patent policies along the lines recommended by the Department of Justice.

The report incidentally indicates certain abuses of our patent system. The government patent policy as recommended is defended on the ground that it lessens the suppression of patents and the control of important patents by a

few large companies—in other words, it encourages the general use of the invention and competition. Further, according to the Alien Property Custodian, many enemy patents proved worthless because of inadequate disclosures.

Various questions arise as one reads this report: for example, what kind of patent system would result if the government and private business generally became owners of rival patents? Again, is the exclusive control of an invention essential to its commercial development? Various defenders of our patent system contend that it is. However, two of the largest private research organizations conducting research on a non-profit basis—the Research Corporation and the Chemical Foundation—reported success in obtaining industrial exploitation of their inventions under non-exclusive licenses even where industry has originally insisted upon exclusive rights. Also, universities which take out patents on research which they sponsor usually issue licenses on a non-exclusive basis. Again, the report indicates that outstanding inventions within government departments may find their way into public use whether exploited exclusively or freely.

In discussing and summarizing the patent policies of various institutions, the Department of Justice has rendered a real service by providing each of them a ready means of comparing its policies with those of others and therefore of determining its policy in the future.

The whole report, with its recommendations concerning government patent practices and policies, is very timely in view of the recent and prospective activities of the government, especially its research in its own laboratories and in those of universities and other non-profit organizations and of business enterprises.

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Marketing; Domestic Trade

Marketing: An Institutional Approach. By EDWARD A. DUDDY and DAVID A. REVZAN. (New York: McGraw-Hill. 1947. Pp. xii, 675. $4.50.)

This is a college textbook designed for a general course in marketing and written on the assumption that "the student has a background of elementary and some advanced work in economic theory" (p. 463). The approach is "frankly institutional," which may suggest different things to different persons. "The authors have tried to be consistent in their use of the institutional point of view. They have attemped to rationalize this view by distinguishing the essential characteristics of an institutional economy as (1) functional activity, (2) structural organization, (3) co-ordinating forces" (p. v).

The authors adopt a broad—and excellent—definition of marketing: "the economic process by means of which goods and services are exchanged and their values determined in terms of money prices" (p. 4). The essence of marketing is taken to be the making of certain decisions: "it is clear that to have a market the goods traded need not be physically present, nor need the

buyers and sellers be in actual physical contact. . . . It is the meeting of minds that is important" (p. 10). This basic position sets the stage for some excellent descriptions of marketing agencies, and of market areas, followed by a discussion of price and price policy. There is a final section on coordination and control.

Part II on Agency Structures of the Retail Market (pp. 117-248), and Part III on Agency Structures of the Wholesale Market (pp. 251-414) are routine, descriptive, and neither better nor worse than similar material in other texts. Part IV on Market Area Studies (pp. 417-59) is more adequate than the treatment in most of the available texts on marketing. No pretense is made, however, of explaining market areas by specific examples of such things as supplies of natural resources or productivity of labor. In fact, this entire section is disappointingly abstract, especially in view of the fact that both authors have many objective studies to their credit.

Part V on Price Structures (pp. 463-541) is, perhaps, the most satisfactory section of the book because it has more of worth not found in every other text. In this section as elsewhere, however, the authors' adherence to institutionalism is evident. They state (p. 15) "inherent in the institutional approach is the recognition of ethical standards and the right of control by government in the interest of the general good." This leads them to suggest that perhaps even in peacetime there are circumstances in which it is better to have some agency of government coerce people into a program of production and consumption rather than to have business men cajole them into some different program, since, for example, "it is unlikely that fancy packaging is of as much value to the consumer as low prices or improved quality" (p. 476).

This book really is two books. In the first place, it is a somewhat conventional presentation of the marketing system and agencies. In this it is adequate although not especially outstanding or new.

In addition, however, it is a discussion of "institutional philosophy." The authors say, for example, "it is not so much that institutions arise to meet needs as that they are consciously promoted and developed. Self-interest is plainly the motive for action in both cases, the difference being in the willingness of the individual under an institutional economy to subordinate his interest to that of the group, the better to accomplish his individual purpose" (p. 15). In so far as the authors merely mean to imply that it is as natural for persons to combine as to compete, they are realistic. Students of marketing are well advised to start their descriptive and analytical study of markets with that axiom firmly in mind. If, however, the authors intend to imply, by their continuing references to the institutional approach, that it is socially or ethically better for the individual "to subordinate his interest to that of the group" they are on controversial grounds where individual cases must be dealt with separately. The uncurbed urge to combine may lead straight to monopoly, restricted use of resources, and high prices, in which case it is satisfactory as an explanation but ethically unacceptable. The urge to "better accomplish his individual purpose" may lead some to join the group only to find that the group recognizes no individual purpose.

Clear recognition in a textbook on marketing that group action and group pressures are part of our economic structure surely is to be desired. In the present case, however, it seems to this reviewer that the elaboration of the case for the institutionalist is unhappily undertaken because it is both somewhat inadequate and somewhat unnecessary.

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Transportation; Communication; Public Utilities

Economics of Public Utilities. By EMERY TROXEL. (New York: Rinehart. 1947. Pp. xiv, 892. $5.75.)

Professor Troxel's *Economics of Public Utilities* is designed primarily as a text for college courses in public utility economics. A distinctive feature as a text is the relatively large space devoted to an analysis of utility prices. The topic is discussed in Chapters 24 through 28, comprising 113 pages, and supplemented by additional chapters entitled "Pricing of Municipal Services" and "Prices of Regional-Project Service," comprising 45 pages. Since Troxel is highly critical of existing rate practices and theories of companies, governmental operators and regulatory commissions, considerable controversy may be provoked by his treatment of the subject.

Troxel concludes that there is excessive discrimination in utility schedules and that commissions do not prevent or erase price discrimination. Furthermore, he finds that "Some regulators do not understand what price discrimination is. Others like some kinds of price differentiation; these differentiations often are cases of what they approvingly call "promotional" pricing" (pp. 795-96).

The important problem of price regulation for Troxel is control of price differentiation. He considers two principal forms of price differentiation—"class pricing," characterized by classification of consumers with different prices fixed for each class and "quantity-discount pricing," which involves different prices as each consumer increases his purchases.

In opening his discussion of class pricing, Troxel sets forth two economic bases for price differentiation, one resting on differences in service costs, the other on differences in buyers' demands. "When price differentials are based on differences in demand behavior a condition of discriminatory pricing exists" (p. 570). After a brief consideration of the nature of utility costs the author dismisses the possibility of proof of non-discrimination by cost analysis on the ground that "There is no perfect, unassailable allocation of joint utility costs" (p. 576). Convincing evidence cannot be presented, the author continues, that the price differentials are not larger than the cost differentials for the several classes of service. "So there is still a basis for the belief that companies, guided by demand conditions, have a discriminatory pattern of class pricing" (p. 578).

The author's demonstration that class pricing for electric service is discriminatory (that is, related to dfferences in demand elasticity) is found in two paragraphs describing the general nature of demand for residential

service and industrial service. The alternatives to electric lighting service are practically nonexistent but more alternative services are available for domestic cooking, refrigeration, and water heating. "Yet, even when all the domestic uses are considered, the demand elasticity of residential consumers cannot be very high at any price" (p. 583). On the other hand, large industrial and commercial buyers have the alternatives of constructing their own plants and the prices of electricity sold to them must compare favorably with those of other sources of light, power and heat.

Troxel points out social justification for price discrimination in some circumstances. A plant with unused capacity might need additional earnings to get a minimum reasonable return, which would only be obtainable by tapping new uses with lower prices. Also justified is discriminatory pricing to attract more business so that production can take place on a larger and more economical scale.

Troxel concludes that commissions at times of general rate reductions can choose between two policies: reduction of discriminatory prices or maximum service consumption. He advocates reduction of discriminatory prices so that price reductions go largely to small residential and commercial buyers.

Turning to an analysis of "quantity-discount pricing," the author finds excessive discrimination against small buyers in each class of service. Again the emphasis is on demand rather than cost analysis in establishing this conclusion. He criticizes the rate policies of commissions saying "they do not understand that the choices of block sizes and block prices of rate schedules represent another kind of demand-price differentiation. Indeed, they praise promotional pricing, never knowing apparently that a promotional schedule of prices is drawn from the demand prices of the buyers" (p. 641).

Troxel's recommendation for an appropriate rate policy is as follows: "When the earnings of a company are reduced, the initial block prices for domestic, commercial, and industrial customers can be reduced. And earnings reductions can be used to eliminate the service charges and minimum bills. Proceeding in this manner, the commission starts a movement toward uniform prices" (p. 643).

The first criticism of Troxel's treatment of utility pricing should be directed at the kind of economic analysis employed. Troxel abandons cost analysis and relies largely upon demand analysis, because all allocations of joint cost are arbitrary. One can agree that joint cost allocations are arbitrary and yet hold that cost analysis overall is more valuable than demand. To jump from cost as unsatisfactory and plunge into demand is to jump from the frying pan into the fire. Troxel does not supply any clues to successful measurement of elasticity of demand other than the general statement that elasticity varies proportionately with the quantity and quality of the alternatives available. Commissions will make greater progress toward scientific rate-making by continuing efforts for better accounting and cost data for rates than by depending upon demand analysis. While exact costs per unit cannot

be ascertained, the margin over which reasonable experts will disagree can be used by commissions as an area for the exercise of distributive justice in the public interest.

An attempt to deal with discrimination should be accompanied by considerable cost analysis because discrimination under utility regulation is measured by the difference between the price of a unit and its actual cost. A movement toward uniform prices as advocated by Troxel might lead to more, rather than less, discrimination. "One of the simplest and most common kinds of discrimination occurs through failure to discriminate."[1] A move to reduce or eliminate service charges and minimum bills might merely subsidize the small user at the expense of the larger and curtail production that is socially desirable, especially if the change were made on the basis of demand elasticities unaccompanied by cost analyses.

Beyond questions of deficiencies in economic analysis, lies a more fundamental criticism—economic analysis alone is inadequate to deal with the problems of utility pricing. Case studies and statistical inquiries that are not confined to cost and demand considerations are needed to reveal the important factors affecting utility pricing and possible means of reaching desirable social and economic goals. For example, case studies will show that within the jurisdiction of one commission there will frequently be two utilities, comparable in many respects, yet one of which will have a higher average use of residential electricity and lower rates as measured by typical bills. What are the explanations for the achievements of the progressive company? Generally we find the progressive company has, among other things, an aggressive sales promotion force and more dynamic executives, who are alert to changing conditions and quick to adopt innovations in rates and services. And a study of its rate history would probably reveal that, over the years, it practiced more discrimination than the company that chose to "stand pat" within its legal rights under regulation.

In a sense, the broader view would study the significance to rate policy of commission action that promotes the positive virtues of efficiency under regulation as contrasted with the negative virtue of merely staying within the limits of legal earnings. Such studies would consider among other things the impacts upon utility pricing of comparisons of electric bills and their use by commissions to negotiate rate reductions, the prodding with real or potential "birch rods" of publicly owned plants, and the public relations reactions of companies to general dissatisfaction of customers in their role of voters. Other practical applications in rate-making would be considered. For example, the TVA initial rate policy was not the result of thoroughgoing economic analysis but rather was conditioned by the progressive commission viewpoint of the time advocating promotional rate policy and adhering to the belief that the demand for residential services, if not elastic in the economists' terms, offered great possibility for expansion if coupled with aggressive sales promotion.

Historical studies of rates would also reveal that discrimination has not

[1] J. M. Clark, *Studies in the Economics of Overhead Costs* (Chicago, 1923), p. 428.

always run against the residential class. During the depression of the 'thirties, many companies realizing that the residential class showed more possibilities for expansion than the industrial class, practiced discrimination in favor of the residential class by adopting bargain and objective rates. (Elasticity of demand for electricity for industrial power was not very high during the depression. This raises a question as to the validity of measuring elasticity by generalizations on the alternatives available.)

Rate policy should be based not only on the findings of economic analysis but also on the findings of broader studies that would consider, among other things, the means that have been used to accomplish the desirable end of greater use at lower rates. Consumers in the residential class are better protected by efforts to reach this goal than by efforts limited to minimizing discrimination in the lower blocks. The social and economic benefits of expanding use at lower rates for the mass of society overshadows the inequities of discrimination. The flexible use of discrimination in utility pricing under proper regulation can be a vehicle of the highest social justice.

Troxel has formulated a rate policy without placing the utility pricing problem in its setting in relation to more fundamental economic and political goals. These goals include the provision of full employment and a constantly rising standard of living. To assure these requires the maintenance of gross national product at levels substantially higher than those achieved in the years between the World Wars. This implies that utilities must be expanding industries, constantly encouraging, not restraining, new uses. In this setting the objective of rate policy will be to move all customers to higher levels of consumption and not to encourage their continuance in lower blocks by rate concessions.

Many sections of Troxel's book are outstanding in comparison with other texts currently available. In my opinion the parts that deserve special commendation are those dealing with the operations and accomplishments of the Securities and Exchange Commission, the Federal Power Commission, and the various federal agencies dealing with regional power projects and rural electrification. The explanation lies in the great mass of original material that Troxel has analyzed as the basis of his studies of recent regulatory activity. Practically all data in the field, which previously had been scattered throughout a great range of government releases, special studies, periodical literature and doctoral dissertations, have been worked into a well-written, unified account.

In my opinion the book is too advanced for college students who are being introduced to the field of public utility economics. Most teachers will hesitate, however, in depriving students of such an excellent account of recent regulatory efforts. The solution may lie in supplementing the text with lecture material on the institutional basis of public utilities, which to me is the best single thread of meaning for unifying the diverse parts of this subject.

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Analysis of Railroad Operations. By JOSEPH L. WHITE. 2nd ed. (New York: Simmons-Boardman. 1946. Pp. xviii, 306. $5.00.)

This second edition of Mr. White's book will be of interest to students of railroad transportation, as well as to railway officers and analysts of railroad securities. The earlier edition, published in 1925, has been brought up to date by the inclusion of more recent figures, by a review of wartime problems encountered by the railroads and by the appendage of new charts, tables, schedules and photographs illustrating the various phases of railroading.

Although the title might lead to the belief that this is a book describing the operating practices of railroads, actually it is a guide to railroad accounting, with special reference to the classifications adopted by the Interstate Commerce Commission and the forms employed by the companies themselves to summarize the physical performance of railroads. Mr. White is not concerned with capitalization and valuation, with earnings and dividends, with divisions and rates, but goes behind the income account, the balance sheet and the profit and loss account, to describe standards of cost accounting and indexes of managerial efficiency. Particularly is he interested in the ratios obtainable from railroad operating statistics which, over time, indicate to the railway manager and analyst the success of the company in controlling unit costs in the face of fluctuations in business.

A feature of this edition is a comparative analysis of the operating results of two Class I railroads—unnamed but easily recognizable as the Erie and the New Haven—on the basis of their reports to the Interstate Commerce Commission (Schedules A through H). The analysis proceeds in terms of expense ratios, that is, the cost per dollar of revenue of line-haul and yard operations, maintenance, fuel, and other specified items of expense. The results of this analysis—which could scarcely be called surprising—is that the Erie enjoyed more net railway operating income in 1941, because 90 per cent of its total revenues came from freight, in which it enjoyed a slightly more favorable expense ratio, while only 4.5 per cent of its revenues were derived from passenger service, in which the New Haven had considerably better expense ratios as the result of greater traffic density per mile of road and better occupancy per train. Putting it another way, despite greater volume, the passenger business of the New Haven fell short in 1941 of meeting its proportion of costs common to both freight and passenger service and the freight business, despite its profitability, could not make up the deficiency.

Mr. White omits from his discussion the various formulas prepared by economists of the Interstate Commerce Commission during recent years for determining "out-of-pocket" costs of handling freight and performing intercity and suburban passenger services. He assumes the traditional meaning of "out-of-pocket" as referring to those direct expenses which relate solely to an individual service, and does not extend the concept, as the Commission's analysts have done, to cover an assigned percentage of the common costs, including a proportion of the cost of capital items required to furnish the service. "Out-of-pocket" costs, in their analysis, are those costs which would be saved if the service were eliminated.

There is also no mention here of methods of segregating revenues and expenses associated with the operation of a particular line or division of a railroad system which have been employed in a number of reorganization cases in the last ten years, notably the Alton, the New Haven and the Jersey Central. These segregation formulas involve, among other things, the allocation of a "constructive mileage" to terminals, corresponding roughly to the importance to total operations of each terminal. When related to the true mileage between terminals, this allocation enables an apportionment of revenues and costs to be made which will, in a general way, indicate to the railroad manager or analyst whether operation of the segment being considered is profitable or not, and to what extent.

One of the most important considerations to modern railroad management is the effect upon costs of the introduction of new technology. While Mr. White states (p. 195) that costs of repairing electric and diesel-electric locomotives are lower per unit of service than are repair costs of steam locomotives, there is no proof offered for the statement, nor any overall analysis indicating the advantage or disadvantage with respect to steam of electric and diesel-electric locomotives in the different services and under varying conditions of operation. Again (p. 198) Mr. White asserts: "It has been generally found that electrification reduces maintenance of equipment and transportation expenses but increases maintenance of way and structures because of the maintenance and depreciation of the power plants and distribution system." If the author had drawn upon his wide experience to explain and illustrate this generalization, the result would have been a sounder and more interesting analysis of operations, and one which would have been of considerably more value to railroad executives and students. The same is true for other examples of technology now being widely applied, including new signalling and communications equipment, car retarders, lightweight cars and other modern rolling stock.

At the heart of an analysis of railroad expenses and revenues is the relation of costs to volume of business. Mr. White's book provides scant information on this subject. In connection with an appraisal of the expense of maintaining roadbed (p. 99), Mr. White refers to a study made by the U. S. Railroad Administration of the effects of World War I train movements upon costs, which found that approximately one-third of these expenses varied directly with use. He does not provide us with the basic data and assumptions of this study, nor does he indicate whether railroad experience during the 1930's and in World War II revealed a similar relationship. On the other hand, the author offers the following gratuity with respect to payments for loss and damage to freight and injuries to persons: "These payments do not ordinarily have any direct relation to the traffic." This reviewer seriously questions this observation with respect to both passengers and freight.

A significant development of World War II was the discovery by railroad management that considerable business previously written off by them as unprofitable and which they had considered irrevocably lost to highway and other carriers, could if handled in volume become profitable, or if it did not cover total costs, could at least meet direct operating costs and contribute to

common and overhead costs. Examples of such business are inter-city passenger traffic and less-carload shipments. At present rail carriers are striving mightily to retain this business which came to them during the war because it had no other place to go. In his capacity as executive officer of the Office of Defense Transportation during World War II, Mr. White was in an admirable position to analyse the effect on costs of traffic increments. It is to be regretted that he did not do so.

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Economic Geography; Regional Planning; Urban Land; Housing

Land Use in Central Boston. By WALTER FIREY. Harvard Sociological Stud., Vol. IV. (Cambridge: Harvard Univ. Press. 1947. Pp. xv, 367. $5.00.)

These detailed studies of the factors affecting land use in central Boston are intended to show that current land-use (location) theories are inadequate. Although case studies are not sufficient to prove a new theory, the author seems to have established his case that there are serious deficiencies in the present location theories.

The reasons for these deficiencies, though the author never states them in these terms, are of two types: First, the monetary and psychic benefits from a piece of land are dependent on what is being done with other pieces of land, and on other people's value patterns. Italians stay in the slums because their friends are there. Doctors have their offices in Back Bay for similar reasons. People like to live on Beacon Hill because other people regard it with respect. Second, certain benefits or costs are not, or cannot be, expressed in monetary terms, so that efficient use of resources (land in this case) requires collective action. The preservation of Boston Common illustrates this.

These two types of problem would seem to require different types of analysis. They are not distinguished carefully in this book, and are confused for the general reader by the use of specialized terminology and coined words like "anomie." At times, Dr. Firey seems to be saying that the allocation of space is irrational:

> In all of these examples it appears that space has been divested of its role as a productive agent and has been removed from the process of rational allocation. As a result it has been put to wholly non-economic uses—uses that yield no income whatsoever. And yet, paradoxically, it has yielded "utility." But this utility is not of the sort which attends the minimization of cost. It is of a very different order, one which nevertheless has real functional significance for the larger social and cultural system (p. 168).

Nevertheless, the empirical studies are a real contribution and should be read not only by location theorists but by every economist interested in the general theory of resource allocation. Economists have recognized these problems of "external economies and diseconomies," and "private *versus* social costs," ever since Sedgwick and Pigou. Attempts have been made to take account of these difficulties, but for the most part location theory, the theory of

the firm and the household, and the theory of resource allocation under competition, have tended to neglect the problem. And even where the problem has been discussed, there has been very little empirical evidence as to its relative importance. Dr. Firey's study makes a significant addition to our supply of such evidence. The study also sheds light on the development of land uses, and of people's taste patterns, through time—a necessary supplement to more static theories.

The book offers only a very general theoretical solution to the difficulties, and much work remains to be done here. Can we analyze the situation in terms of possible bribes, nearby property owners paying slum owners to rehabilitate their structures? Can we ask the results of large discrete changes such as moving all Italians to Roxbury at once? Does it help to ask what would happen if all the property in a large area were owned by one decision-making unit? Do interdependences of utility among households, and of rents among parcels of land, mean that we can no longer go from the theory of the firm and household to a theory of resource allocation? Can we devise a theory of location which takes account of these complicated relations? These are some of the problems implicitly raised by this study. We heartily recommend the book not only as a real contribution to our empirical evidence, but also as an extremely interesting sociological study.

JAMES N. MORGAN

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Labor and Industrial Relations

History of the Labor Movement in the United States: from Colonial Times to the Founding of the American Federation of Labor. By PHILIP S. FONER. (New York: Internat. Publishers. 1947. Pp. 576. $4.50.)

Through a provocative summons to the ideological barricades which constitutes his Preface, Philip S. Foner compels detailed comparison of his *History of the Labor Movement in the United States* with the first two volumes of the classic work of Commons and associates. Dr. Foner, who is now a member of the history department of the Jefferson School of Social Science in New York, acknowledges at once the debt of all labor historians to the early work of Richard T. Ely, George E. McNeill, John R. Commons and Commons's collaborators and students. But in the process of paying tribute to Professor Ely's vast collection of labor materials now at the John Crerar Library in Chicago, to the ten-volume *Documentary History of American Industrial Society*, and to the four volumes of the Wisconsin school's *History of Labor in the United States*, Dr. Foner also reveals his real intent: justification of the need for a fresh treatment of the period from colonial times to the founding of the American Federation of Labor in 1881, the coverage of his present volume. A second volume, now in preparation, will continue his newly oriented narrative to the most recent events in American labor history.

Three considerations have prompted Dr. Foner to undertake the careful and well-documented research which the present volume represents. First, new

materials, like memoirs of trade union leaders and unpublished theses and dissertations, have appeared since the publication of the earlier Commons *History*. These materials make necessary, in Dr. Foner's opinion, "a re-evaluation of conclusions reached in all previous writings on the subject." Apart from the emphasis which Dr. Foner has placed upon the so-called new facts, his search through latter-day sources has resulted in four chapters on subjects which were not treated by Commons separately, in the same way, or in as great detail, although the diligent student may find the essential data in the earlier work should he choose to do so: Labor and Jeffersonian Democracy, Labor in the Ante-Bellum South, Northern Labor and Slavery, and Labor and the Copperheads.

The remaining twenty-one chapters in Dr. Foner's narrative follow the presentation in the Commons *History*. As a matter of record, Commons, in contrast with Foner, has covered the principal periods of early American labor history more fully, and has approached the main narrative with an introductory chapter on conditions, philosophies and movements, followed by three chapters describing market theory, the development of bargaining classes and the economic systems of the merchant capitalist. For the most part, except for the interpretation which Dr. Foner chooses to place upon the additional, if not precisely startling, facts which he has unearthed, his details do not add substantially to our earlier understanding of the period involved or of the problems discussed. He might have used, just as convincingly, Commons's old facts for his new interpretation. But minutiae are always welcome in the world of scholarship.

Dr. Foner asserts, secondly, that the Wisconsin school failed to "deal with the labor movement in its larger economic, political and social setting." The first four chapters, already cited, of the Commons *History*, still stand as monuments to these larger considerations. Scholars may quarrel about the theory of the labor movement which these chapters espouse, but not with their fullness or their range. From the legal standpoint, Commons treats the conspiracy cases from 1806-1815 much more adequately and accurately than Dr. Foner. Commons, for example, specifically states that the Commonwealth *v.* Hunt decision remained, for all practical purposes, an isolated case. Dr. Foner tries to interpret it, goaded on by his ideology, as a political victory for labor. Dr. Foner's reader would never guess the limited significance of the decision during the years under study. Part II of the Commons *History*, "Citizenship," devoted six chapters to the broad problems involved. Three have sufficed for Dr. Foner. Part IV of Commons, "Humanitarianism," contains seven chapters ranging from immigration to agrarianism as compared with Chapter 11 of Dr. Foner's work, although elsewhere he has woven some of these considerations into the fabric of his *History*. In Part VI, Selig Perlman's treatment of early socialism, anarchism, and syndicalism is still unexcelled. Precisely how much larger can "larger" justifiably be?

Thirdly, Dr. Foner contends that the work of Commons and the theory of the American labor movement formulated by Selig Perlman are constricted by limitations and shortcomings which recent "events have completely exploded."

American economic life has demonstrated, according to Dr. Foner, "the divergence of interest in the fundamental relationship between labor and capital." The contemporary organization of mass-production workers through industrial unionism, the unity established between Negro and white workers, and the influence exerted by the labor movement in the field of political action and in "the world-wide struggle against fascism, not only indicate how the Commons-Wisconsin school miscalculated regarding the policies the labor movement had to adopt to achieve success, but they also show that precisely those policies hailed by this school had to be abandoned if the task of organizing the great mass of American workers was to be accomplished." Therefore, Dr. Foner's volume "undertakes to present a new interpretation of the history of the labor movement in the United States based upon manuscripts, newspapers, pamphlets and the existing monographic material in American history, economics, and related subjects."

Unfortunately, Dr. Foner chose the wrong period in American history with which to corroborate his prefatory views. He may yet succeed in establishing the validity of his explosion-proof interpretation in the promised second volume. He may prove, for example, that the clothing workers and the steel workers, pillars of the CIO, act upon a theory of divergence of interest between labor and capital; that the large mass-production industries were organized, and are kept organized, primarily on concepts of class-consciousness and class-solidarity; that the CIO in the Deep South has not been forced by expediency into Jim Crow arrangements despite their courageous insistence on non-discrimination; that political action by the CIO, thus far, when stripped of modern clamor and advertising techniques, is anything but old Sam Gompers' "reward your friends and punish your enemies" doctrine.

But for the time being, in the present volume, the facts which Dr. Foner marshals serve to substantiate yet once more the fundamental soundness and wisdom of the Commons-Perlman theory of the labor movement, at least for the early period under consideration. Again and again, when the facts are recalcitrant, like those concerning the mechanics' union of Philadelphia which lasted only four years and devoted most of its energy to political action, Dr. Foner has composed interstitial passages like this: "Its most important contribution to the rising labor movement was its example of labor solidarity among the workers of various trades." What practical continuous good the example provided a dead city labor movement, Dr. Foner fails to explain because he cannot. (He often seems to infer that labor movements are influenced by a knowledge of labor history, the only way by which such examples could be remembered.) Commons and his associates at least explain why that movement and similar early movements did fail. Their theory never implied that no instances of class consciousness or independent political action ever arose on the early American scene. Dr. Foner writes as though he seriously believes that once he has noted that such events occasionally arose, he has exploded a theory.

Dr. Foner's *History* is obviously the work of a painstaking and careful scholar whose documentation evidences on every page the multiplicity of his

sources and the breadth of his search for facts. But Dr. Foner, in addition to his just claim to scholarship, must also acknowledge devotion to formalized Marxian theories and ideals. This marriage of fact and faith, one of psychological compulsion, has made his task of dealing with the un-Marxian data of early American labor history unmanageable. In his preface, Dr. Foner quarrels with the "job consciousness" analysis of the Wisconsin school as opposed to the "class consciousness" theory of labor movements. But in the text itself, he can never once prove the existence of class-consciousness or class-solidarity strong or permanent enough to consolidate the workers of a city, region, or larger area into a lasting labor movement. Until a Marxist historian can explain satisfactorily, in terms other than those of the Wisconsin school, why no permanent labor movement emerged in the United States until the formation of Gompers's misguided American Federation of Labor, the pragmatic theory remains unchallenged.

In one of her famous sonnets, Edna St. Vincent Millay speaks of reading lively chronicles of the past, "hunting the amorous line, skimming the rest." While Dr. Foner does not skim, he certainly hunts the "Line." No student should forego, however, the privilege of reading and using this conscientious and craftsman-like contribution to the field of American labor history.

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Les Caractères Contemporains du Salaire. Pragma, Publications de l'Institut de Science Économique Appliquée. (Paris: Presses Univ. de France. 1946. Pp. 160. 240 fr.)

Salaire et Rendement. Pragma, Publications de l'Institut de Science Économique Appliquée. (Paris: Presses Univ. de France. 1946. Pp. 234. 300 fr.)

The *Institut de Science Économique Appliquée* was founded in January, 1944 under the directorship of Professor François Perroux. The original members of the Institute were semi-public institutions such as the Bank of France and a number of Chambers of Commerce, public institutions such as the Faculties of Law and the Caisse des Dépôts et Consignations and private institutions such as the École Libre des Sciences Politiques. Individuals and private organizations may join the Institute as associate members. The aim of the I.S.E.A. is the investigation of economic problems of public interest. It has its own journal and in addition publishes monographs on topical questions.

The present two volumes are the first monographs in a special series concerning wages and wage policy. The first volume is an excellent source of information on French wages and salaries and French wage policy. Its author, Yves Mainguy, starts his investigation by first pointing out that wages and salaries are composed of three different elements: (1) one part which roughly expresses the economic value of the work done by the worker; (2) a second part which he calls the "social wage," in which social security benefits and family allowances are included, and (3) a statistically unmeasurable part which expresses conditions of work, the agreeableness of the social milieu, etc.

The author then discusses these three parts in detail. His critical survey of the statistical sources of information on French wages reveals that French statistics are very inadequate. Only the wages of miners are really accurately recorded. Some of the results may be mentioned specifically.

1. A comparison of wages paid in small industries in Paris and wages paid in the same industries outside Paris showed a very wide discrepancy in favour of Paris. In 1938, the hourly wage in Paris was 10.50 francs whereas outside Paris it was 6.19 francs, and weekly earnings in the two regions were 420 francs and 248 francs respectively.

2. Wages of miners, even of those working underground, were all through the interwar period considerably below the wages in the small industries in the Paris region.

3. The wage differentials between skilled, semi-skilled, and unskilled workers showed a strong tendency to narrow down. The ratio of the wages of unskilled workers to those of skilled workers in the metallurgical industry in the Paris region in 1914 was 53 per cent, and in 1938, 71 per cent; the corresponding ratios of semi-skilled to skilled wages were 70 per cent and 87 per cent, respectively.

4. The "social wage" is also investigated statistically. In France there exists a system of family allowances which are paid not by each individual enterprise but by public agencies out of funds to which the enterprises contribute. These *Caisses de Compensations* may be local or regional, professional or interprofessional. Their disbursements in 1938 amounted to 3.06 billion francs, and in 1943 to 11 billion francs. If allowance is made for these family benefits and for the various types of social security, roughly 15 per cent has on the average to be added to the wage of the French worker.

5. The purchasing power of the wage of a skilled worker in the metallurgical industry in the Paris region did not rise above the 1914 level until after 1929. It was 30 per cent above by 1938. Semi-skilled and unskilled workers fared better. The purchasing power of their wages was above the 1914 level through the whole of the interwar period (in 1938 those of semi-skilled workers were 60 per cent and those of unskilled workers were 74 per cent above). The salaries of higher civil servants never reached the level of 1914 (they were 28 per cent below in 1936). The purchasing power of wages and salaries during the second World War was below the prewar level in all categories, even if the purchasing power is calculated on the basis of controlled prices. Some observations on the third element in wages conclude the volume.

The reviewer is not in a position to appraise critically the reliability of the statistical material. But the study gives the impression of careful work and the reader is frequently warned that the statistics are incomplete and that the figures should not be taken as a precise measure of the movement of wages and of their purchasing power.

The second volume, written mainly by the same author, deals with the systems of wage payments in French agriculture, commerce and industry. The discussion starts from three propositions: (1) that the employer is solely or mainly interested in the relation of the wage to the productivity of the worker

and therefore favours wage systems which give the worker an incentive to work harder; (2) that the worker is interested in the relation of the wage to the subjective "pain" (including boredom) of his work and therefore favours time wages; (3) that work should be the centre of interest for the worker, around which he arranges his life, which is not the case for the mechanized industries (employing about 3 million workers in France). These industries are exactly those in which social unrest and political agitation are strongest in France.

The author groups the various wage systems under three headings: "technical" wage formulae, "economic" wage formulae, and "social" wage formulae. Under the first heading, he discusses time and piece wages and combinations of the two. The reader finds here a critical discussion of the Taylor, Halsey, Rowan, Gantt, Bedaux, and several other systems. Under the second heading, the author deals with profit-sharing schemes and some other "solutions" which seem peculiarly French. Under the third heading, the influence of such factors as seniority and the size of the family on wages is investigated. The various wage systems are discussed from the point of view of the employer as well as from that of the wage-earner, and also from an "objective" point of view, where interest is concentrated on what the author calls "human equilibrium" for the worker. The author's comments on the various wage systems are stimulating and well balanced.

FRIEDRICH A. LUTZ

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Union-Management Co-operation: Experience in the Clothing Industry. By KURT BRAUN. (Washington: The Brookings Institution. 1947. Pp. xi, 259. $3.00.)

Union-management co-operation is one of those (numerous) subjects in the field of labor relations for which no universally accepted definition has yet been elaborated, with the result that the term has been used by different people in radically different senses. For Braun, union-management co-operation signifies: "collaboration of management and unions on subjects extending beyond elementary matters of employer-employee relations."

Within the framework of this definition, the author describes various aspects of the co-operative labor policies practiced in both branches (men's and women's) of the clothing industry. The techniques utilized to administer the co-operative ventures are discussed at some length. There are chapters dealing with wage setting, conditions of employment, the development of efficiency in production, promotion of sales, union welfare plans and industrial disputes. The author also examines the effect of union-management co-operation on the patterns of employment, wages, profits, and prices. He is careful to point out, however, that the behavior of these economic variables in the industry cannot possibly be attributed to the co-operative policies alone.

This descriptive material is not new. One can find various parts of it in the well-known books by Slichter, Levine, Strong, Soule and others. Furthermore, these scattered inductive segments are systematically collated in Seid-

man's volume on *The Needle Trades*. But Braun goes beyond mere description. He also attempts to analyze the determinants of union-management co-operation in general, and in the clothing industry in particular. The salient features of this analysis are: (1) unions rather than management have initiated collaboration in most instances; (2) managerial opposition has arisen mainly because co-operation entails the encroachment by unions on managerial functions; (3) union leadership has been more favorably disposed toward co-operation than the rank and file; (4) certain economic conditions facilitate the genesis of co-operative plans—for example, intense competition.

While this analysis touches on some of the significant elements in union-management co-operation, it does not go deeply enough. As a consequence, it fails to provide an adequate approach to many a problem in this sphere. To mention only a few: Why do some employers accept co-operation and others do not? Do employers' attitudes toward co-operation undergo any important changes over time? Why do some union leaders succeed in winning the rank and file over to co-operation while others fail? Do a union's objectives have any influence on the success of co-operation? What is the relationship between worker psychology and union-management co-operation?

One can, of course, adopt any definition for a problem that one desires, provided it is used consistently throughout the thesis in question; and Braun's definition of union-management co-operation is consistently applied. However, his definition is too broad to permit of constructive analysis. Thus, for example, it embraces co-operation designed to increase sales through more intensive advertising as well as co-operation planned to increase efficiency through the use of incentive wage systems. Yet the factors which could enable one to succeed would be inadequate for the other. Workers may have no objection to increased advertising, but may be bitterly opposed to incentive wage plans. In the light of such dichotomy in actual behavior, it becomes important to distinguish between co-operation pertaining to costs and that pertaining to prices and sales. A separate analytic model is needed for each. One has but to think of the bituminous coal industry, where the union and management have collaborated in obtaining government support for price agreements, but where joint action to reduce costs is conspicuous by its absence.

In a society such as ours the importance of union-management co-operation cannot be overestimated. With full employment and extensive union organization we should expect continuous pressure for higher wage scales. And higher wages will be translated into higher prices, unless they can be compensated by increased productivity. Union-management co-operation can contribute toward such increased productivity, as Braun so clearly demonstrates for the clothing industry.

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NOTES

AWARD OF MEDALS OF HONOR

The newly established medals of honor of the American Economic Association, announced in the June, 1947 number of the *Review*, were awarded for the first time at the December meeting of the Association in Chicago. The Francis A. Walker Medal to "that living economist who, in the judgment of the awarding body, has made over the course of his life the most distinguished contribution to economics" was awarded to Wesley Clair Mitchell. The John Bates Clark Medal to "that American economist under the age of forty who is adjudged to have made the most significant contribution to economic thought and knowledge" was awarded to Paul A. Samuelson.

The American Economic Association nominating committee for the current year consists of Professor F. B. Garver of the University of Minnesota, Chairman, Professor Vincent W. Bladen of the University of Toronto, Professor Hazel Kyrk of the University of Chicago, Professor Edward S. Mason of Harvard University, Dr. Woodlief Thomas of The Board of Governors of The Federal Reserve System, and Professor Holbrook Working of Stanford University. It is requested that suggestions for nomination to the various offices of the Association be communicated to the chairman of this committee as speedily as possible.

The next annual meeting of the American Economic Association will be held in Cleveland, Ohio, December 28-30, 1948. Professor J. A. Schumpeter, of Harvard University, the newly elected president, is engaged in outlining the program. He would appreciate receiving as soon as possible suggestions from the members of the Association concerning subjects to be included in the program and persons especially qualified to present them.

The following persons have recently become members of the AMERICAN ECONOMIC ASSOCIATION:

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Rolian, Miss A., 2801 15th St., N.W., Washington 9, D.C.
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Schwartz, E., Rhode Island State College, Kingston, R.I.
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Sherrard, Mrs. A., 2000 F St., N.W., Washington 6, D.C.
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Shohan, L. B., 520 East 90th St., New York 28, N.Y.
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Simha, S. L. N., Research Officer, Reserve Bank of India, Bombay, India
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Smith, G. C., Jr., U. S. Chamber of Commerce, 1615 H St., N.W., Washington, D.C.
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Stevens, R. I., 160-09 Station Road, Flushing, N.Y.
Stokes, C. J., P. O. Box 209, South Lancaster, Mass.
Stone, E. C., 747 Valleyview Rd., Pittsburgh 16, Pa.
Sumner, V. D., Box 216 F E, College Station, Texas
Sweeney, T. D., 7045 Constance Ave., Chicago 49, Ill.
Sweetser, A. G., Box 58, Wesleyan Station, Middletown, Conn.

Szold, S. L., J. M. Dain & Co., Rand Tower, Minneapolis 2, Minn.
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Taylor, J. T., 1726 South East St., Jacksonville, Ill.
Tewari, J. N., Columbia University, 1004 Furnald Hall, New York 27, N.Y.
Thair, P. J., Dept. of Economics, Iowa State College, Ames, Iowa
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Tracey, Miss M. B., Wittenberg College, Springfield, Ohio
Tredland, J. R., Dept. of Economics, History, and Government, U. S. Naval Academy, Annapolis, Md.
Trend, H. G., Unit 56-C, Badger, Wis.
Triantis, S., University of Toronto, 273 Bloor St., W., Toronto, Ontario, Canada
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Varner, D. B., 9943 South Oglesby, Chicago 17, Ill.
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Vogely, W. A., Gambier, Ohio
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Warren, S. E., Social Science Dept., Southern University, Baton Rouge, La.
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Wilsey, H. L., Dept. of Economics, Cornell University, Ithaca, N.Y.
Wiric, V. J., 818 North 5th St., Quincy, Ill.
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Zapoleon, Mrs. L. B., 5729 MacArthur Blvd., Washington 7, D.C.
Zeman, M., 6808 South Halsted St., Chicago 21, Ill.
Zerzan, Miss D., St. Louis University, 3674 Lindell Blvd., St. Louis 8, Mo.
Zinberg, A. D., 504 East 5th St., New York 9, N.Y.
Zubrow, R. A., Dept. of Economics, Indiana University, Bloomington, Ind.

Representatives of university bureaus of business and economic research, meeting in Washington, October 20-22, 1947, established an organization to be known as Associated University Bureaus of Business and Economic Research. Dr. Robert W. French, of the University of Texas, was elected president, and Dr. John H. Cover, of the University of Maryland, secretary-treasurer. An executive committee will consist of the two officers and of Dr. Frank L. Kidner, University of California, Dr. H. H. Chapman, University of Alabama, and Dr. H. K. Allen, University of Illinois. A second annual meeting of the organization will be held in the Middle West in October this year. In addition, it is the intention of the group to collaborate with various learned societies in professional programs.

Openbare Financiën, a quarterly review devoted to the science of public finance, has been established in the Netherlands. The contents are international in character and are published in the language of the authors. The subscription price is $6.00 per year. Correspondence should be addressed to J. A. Monod de Froideville, Emmalaan 2, Haarlem, Netherlands.

The Hebrew University of Jerusalem is establishing a department of economics, and is now in the process of building up a library in this field. Persons who have books or back files of journals which they can spare are asked to communicate with Mr. Don Patinkin, Department of Economics, The University of Chicago, Chicago 37, Illinois.

William D. Ennis died October 14, 1947.

Otto Jeidels died in June, 1947.

William Malone died July 28, 1947.

Hugh D. McMurray died March 27, 1947.

Appointments and Resignations

Eduardo Albertal has returned from Buenos Aires to join the staff of the University of Minnesota as instructor in economics.

Joseph K. Allen has been appointed acting assistant professor of corporation finance at the University of Washington in the absence of Professor Carl S. Dakan during the winter quarter.

Hector R. Anton, formerly of the University of California at Los Angeles, has joined the faculty of the University of Minnesota as instructor in accounting.

Robert S. Aries has been appointed adjunct professor of chemical engineering at the Polytechnic Institute of Brooklyn, N.Y.

Avery Arnold is a research assistant in agricultural economics and farm management at the University of Massachusetts.

Robert Bangs is now a member of the Division of Tax Research of the Treasury Department.

Richard F. Behrendt, professor of international affairs and chairman of area studies at Colgate University, has accepted an invitation to serve as visiting professor in the 1948 summer school of the Universidad de San Carlos, in Guatemala.

Emile Benoit-Smullyan, who has been head of the department of economics, is now also head of the department of sociology at Associated Colleges of Upper New York, Utica, N.Y.

Thomas S. Berry, formerly rental and occupancy advisor in a regional office of the Public Housing Administration, has accepted an appointment as professor of economics at Millsaps College.

Raymond D. Black has been appointed lecturer in economics at the University of Minnesota.

Lester Blum, formerly of Iowa State College, has been appointed assistant professor of economics at Colgate University.

Karl Bode has resigned from the department of economics at Stanford University to continue his work with the Office of Military Government in Germany.

Alfred W. Booth has resigned from the School of Business Administration of State College of Washington to join the faculty of the University of Illinois.

Mary G. Borden accepted a position with the Bureau of Business Research of the University of Kentucky upon completion of a research assignment with the Virginia Public Service Tax Study Committee.

R. W. Bradbury has resigned as dean of the faculty of the American Institute of Foreign Trade at Phoenix, Arizona to become special executive representative for Pan American Airways.

Samuel E. Braden has been promoted from assistant professor to associate professor of economics at Indiana University.

Paul A. Brinker was appointed assistant professor of economics in the College of Business Administration of the University of Oklahoma at the beginning of the current academic year.

Alfred A. Brown has been promoted from assistant research professor to associate professor of economics at the University of Massachusetts.

Wallace T. Buckley, of the University of Indiana, has joined the staff of the School of Business Administration of State College of Washington as associate professor of geography.

E. J. Collins has been appointed assistant professor of economics and statistics at the University of Florida.

Howard J. Critchfield is instructor in geography in the School of Business Administration of State College of Washington.

W. L. Crum has resigned from the department of economics of Harvard University to accept an appointment at the University of California, at Berkeley.

Mortimer B. Daniels, of the Board of Governors of the Federal Reserve System, is offering a course in the Graduate School of Social Science at Catholic University of America in the current semester.

Clyde Dankert is on leave of absence from Dartmouth College during the current semester.

Harvey T. Deinzer holds the rank of associate professor rather than assistant professor of accounting at the University of Florida as was reported in this journal in December, 1947.

Emile Despres has been pro..oted from associate professor to professor of economics at Williams College.

Lawrence J. Dondero is an instructor in economics at Fordham University for the current year.

Wilson Farman has returned to Colgate University as assistant professor of economics after spending a leave of absence at the University of Michigan.

John F. Feit has been appointed instructor in economics at Fordham University for the current year.

Robert Fitzpatrick has been promoted from technical to assistant research professor of economics at the University of Massachusetts.

Marshall Forrest has been appointed part-time lecturer in business law at the University of Washington.

James E. Gates, formerly of the Bureau of Public Administration, University of Virginia, became dean of the College of Business Administration, University of Georgia, in January, succeeding Alvin B. Biscoe, who has been appointed dean of faculties.

William B. Gates, Jr., joined the staff of the department of economics of Williams College as lecturer in July, 1947.

Richard K. Gaumnitz has returned from foreign assignments with UNRRA to the University of Minnesota as associate professor of economics and statistics and assistant dean of the School of Business Administration.

James B. Giles has been appointed assistant professor of economics at Rice Institute.

Martin G. Glaeser is on leave from the University of Wisconsin this semester to engage in research at the John Haynes Foundation in San Francisco.

Leon Goldenberg has been temporarily assigned as economic research attaché to the United States embassy in Paris.

John A. Gronouski has accepted a position as instructor in economics at the University of Maine.

J. A. Guthrie has been advanced from associate professor to professor of economics and from acting director to director of the Bureau of Economic and Business Research, School of Business Administration, State College of Washington.

William Haber, professor of economics at the University of Michigan, is on leave of absence for the second semester of the academic year 1947-48 to act as adviser on displaced persons to General Lucius D. Clay. Mr. Haber has also been appointed a member of the Manpower Consulting Committee to the Munitions Board of the National Military Establishment.

Douglas R. Haines has been appointed instructor in economics in the School of Business Administration, State College of Washington.

Harlow W. Halvorson, formerly of the University of Minnesota, is assistant professor of agricultural economics at the University of Wisconsin.

Kermit O. Hanson has been appointed assistant professor of statistics and accounting in the College of Economics and Business at the University of Washington.

Franciscus R. Harrison has been assistant professor of business management in the College of Business Administration of the University of Oklahoma since September, 1947.

The Reverend George G. Higgins, assistant director of the Social Action Department, National Catholic Welfare Conference, is offering a course in the Graduate School of Social Science of the Catholic University of America in the current semester.

Walter M. Hollowell is a cost analyst with the War Department at Lowry Field in Denver, Colorado.

C. Morris Horowitz, instructor in economics and statistics at Brooklyn College, has accepted a position as statistician with the American Association for Jewish Education.

Leonid Hurwicz has been granted a leave of absence from Iowa State College to assist the European Commission of the United Nations at Geneva, Switzerland.

Bernard Immerdauer was named assistant professor of economics in the School of Business Administration of the University of Oklahoma at the beginning of the current academic year.

L. Arthur Jenkins is assistant professor of business administration in the School of Business Administration, State College of Washington.

B. M. Joffe has been elected assistant secretary for overseas operations for the American Jewish Joint Distribution Committee.

Matthew A. Kelley, of Princeton University, has sabbatical leave of absence for the second term of the current academic year.

Bruce W. Knight has resumed his teaching duties at Dartmouth College after a semester's leave of absence.

Newton B. Knox, of the International Statistics Office of the Bureau of the Census, is in Lima, Peru, serving as economic adviser to the Peruvian government in the preparation of an economic survey of the nation.

Irving V. Kravis has been appointed associate professor of economics at the University of Massachusetts.

Edward H. Landreth has been appointed instructor in statistics in the College of Business Administration of the University of Oklahoma.

John E. Liebenderfer is assistant professor of finance in the College of Business Administration of the University of Oklahoma.

E. C. Lorentzen has been appointed head of the department of management of the School of Business, University of Utah.

Rodney F. Luther has joined the staff of the University of Minnesota as instructor in economics and business administration.

L. F. Mansfield is a teaching assistant in economics at the University of Florida.

Philomena Marquardt, formerly in the industrial relations branch of the Bureau of Labor Statistics, has been teaching at Cornell University during the current academic year.

Jacob Marschak, of the University of Chicago, is visiting professor of statistics and economics at the University of Buffalo in the current semester.

James W. Martin, director of the Bureau of Business Research of the University of Kentucky, has completed his work as research director for the Virginia Public Service Tax Study Committee.

William C. McGrew is an instructor in accounting in the College of Business Administration of the University of Oklahoma.

Archibald M. McIsaac, formerly of Princeton University, has been appointed professor of economics at Syracuse University.

Charles E. McKinney is instructor in business communication in the College of Business Administration of the University of Oklahoma.

Francisco A. Mendieta has been appointed honorary coordinator of the Committees of Voluntary Speakers for the United Nations in Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica and Panama.

Willis B. Merriam has been promoted to assistant professor of geography, School of Business Administration, State College of Washington.

W. N. Mitchell, formerly professor of business organization at the University of Chicago and associate dean of the School of Business, has joined A. T. Kearney and Company, management consultants, as general partner.

Theodosi A. Mogilnitsky has been promoted to the rank of professor of economics at Loyola University, Chicago.

Chandler Morse, formerly of the Board of Governors of the Federal Reserve System, is associate professor of economics at Williams College.

W. J. Murray is an instructor in economics and business law at the University of Florida.

Elroy Nelson has been appointed professor of economics and associate director of the Bureau of Economic and Business Research of the University of Utah.

William E. Newbolt has resigned from the University of Kentucky Bureau of Business Research staff to return to Berea College.

Don Patinkin has been appointed assistant professor of economics at the University of Chicago.

William N. Peach, of the University of Texas, has joined the staff of the department of economics of Syracuse University as associate professor of economics.

Peter C. Peasley has been appointed instructor in economics at Fordham University for the current academic year.

Kirk R. Petshek has been appointed professor of economics at Colgate University.

James M. Pines has been appointed instructor in economics at the University of Massachusetts.

Neal Potter, of the Carnegie Institute of Technology, has joined the staff of the School of Business Administration, State College of Washington, as assistant professor of economics.

Paul Prasow, formerly of Loyola University of Los Angeles, is now assistant professor of management at the University of Southern California.

Clyde N. Randall has been named head of the department of accounting of the School of Business, University of Utah.

O. Preston Robinson, of New York University, has been appointed head of the marketing department of the School of Business, University of Utah.

Mylan E. Ross is an instructor in marketing in the School of Business Administration, State College of Washington.

Theodore R. Saldin is an instructor in accounting in the School of Business Administration, State College of Washington.

B. Claude Shinn has been appointed assistant professor of accounting in the College of Business Administration of the University of Oklahoma.

John C. Shover, of the National Labor Relations Board, is teaching a course in the current semester in the Graduate School of Social Science of the Catholic University of America.

Haig Silvanie was appointed associate professor of economics at St. Louis University, effective September, 1947.

Irving A. Sirken was appointed instructor in economics at Williams College, effective July, 1947.

B. P. Spiro has resigned as visiting assistant professor of international economics at Duke University to join the end-use control section of the International Bank for Reconstruction and Development.

John F. Steele has recently been appointed associate professor of marketing in the College of Business and Public Administration of the University of Maryland.

Walter F. Stettner, of the Board of Governors of the Federal Reserve System, is teaching an evening course in political economy at the Johns Hopkins University.

Frank T. Stockton, formerly dean of the School of Business, is now dean of University Extension at the University of Kansas.

Paul M. Stoner has joined the staff of the department of economics of the University of Notre Dame.

Paul J. Strayer, of Princeton University, has sabbatical leave of absence for the second term of the current academic year.

Roland Stucki has been appointed head of the department of banking and finance of the School of Business, University of Utah.

Theo Suranyi-Unger has been appointed professor of economics at Syracuse University.

Harold F. Sylvester, formerly director of industrial relations, Noma Electric Corporation, has been appointed associate professor of personnel administration in the College of Business and Public Administration of the University of Maryland.

Perry D. Teitelbaum has joined the staff of Indiana University to teach statistics in the current semester.

Carey C. Thompson has accepted an assistant professorship in the department of economics of the University of Texas.

Jack R. Thurber has been appointed instructor in economics at Fordham University for the current academic year.

Alexander C. Vuillemin has resigned as assistant professor of economics at the Associated Colleges of Upper New York to take a position as economist with the Overseas Operations Division of General Motors Corporation.

Gladys B. Wald, who taught economics at Queens College, New York City, in 1946-47, is now teaching at Sampson College.

Leon Wald is an instructor in economics at Sampson College.

Dilworth Walker has been appointed head of the department of economics in the School of Business of the University of Utah.

Elbert S. Wallace, head of the department of economics and business administration at Millsaps College, has been appointed registrar of the college.

Robert F. Wallace has joined the staff of the School of Business Administration, State College of Washington, as assistant professor of economics.

Alfred N. Watson, formerly assistant director of research in the Curtis Publishing Company, has been appointed assistant treasurer of the company.

Bayard O. Wheeler, formerly with the Vancouver Housing Authority, is now a research associate in the Bureau of Business Research and acting associate professor in the College of Economics and Business, University of Washington.

Thomas B. Worsley accepted a position as industrial economist at the Federal Reserve Bank of Richmond in November, 1947 after serving on the staff of the Industrial College of the Armed Forces for three years.

Wladimir S. Woytinsky has been appointed visiting professor of political economy at the Johns Hopkins University. Jointly with Mrs. Woytinsky, he is conducting a survey on economic and political trends in the postwar world, a project of the university. He has also joined the Twentieth Century Fund as a research director of a survey on employment and wages in the United States.

Herbert K. Zassenhaus, formerly of Hofstra College, has been appointed assistant professor of economics at Colgate University.

VACANCIES AND APPLICATIONS

The Association is glad to render service to applicants who wish to make known their availability for positions in the field of economics and to administrative officers of colleges and universities and to others who are seeking to fill vacancies.

The officers of the Association take no responsibility for making a selection among the applicants or following up the results. The Secretary's Office will merely afford a central point for clearing inquiries; and the *Review* will publish in this section brief descriptions of vacancies announced and of applications made. It is optional with those submitting such announcements to publish name and address or to use a key number.

Communications should be addressed to: The Secretary, American Economic Association, Northwestern University, Evanston, Illinois.

Vacancies

Economic research: A Western state university is seeking a man with a Ph.D. degree in either business administration or economics, preferably with some teaching and business experience, for director of the bureau of economic research, rank of professor. The position will pay at least $5,000. P127

Business organization and management: A Western state university is seeking a man to head a new division in the school of business administration, rank of associate or full professor. A Ph.D. degree in business administration or economics is a prerequisite for consideration. Salary range $4,000 to $5,000 depending upon qualifications. P128

Marketing: A Western state university is seeking a man to teach marketing subjects, rank of assistant or associate professor. A Ph.D. degree in business administration or economics is a prerequisite. Salary range $4,000 to $4,500 depending upon qualifications. P129

Head of department: State university in Southwest wants able and experienced economist for headship of department of economics in the college of arts and sciences. P130

Money and banking, principles of economics: The University of Tulsa needs a specialist in money and banking to teach that subject and principles of economics. Ph.D. preferred. Salary and rank depend on qualifications. Address Lyle Owen, Head, Department of Economics, University of Tulsa, Tulsa 4, Oklahoma.

Economists Available for Positions

International economics, comparative economic systems, history of economic thought, social and psychological frontiers of economics: Man, 43, married, European Ph.D., American citizen. Numerous books and articles; extensive experience in teaching and research; at present department chairman at Eastern college. Looks for position with greater opportunities. Available in summer or fall, 1948. E108

Money and banking, corporation finance, public finance, international trade and finance, mortgage finance, labor, theory: Man, single, Ph.D. Experience includes mortgage research for banks; economist in three federal agencies; 11 years of teaching at major colleges and universities. Prefers finance, labor, or theory. Substantial publications in leading scholarly and popular journals. Seeks full professorship. Available in June, 1948. E154

Labor relations, theory, economic history, money, transportation, public finance, consumption: Man, 33, married, near doctorate. Eight years of successful teaching and research in leading universities and colleges; business experience as junior executive; government consultant; publications; academic honors. Now faculty member at state university in East; engaged in important research work. Desires professional advancement. Available in September, 1948. E194

Economics and sociology: Man, 46, Ph.D. from leading university. Broad teaching experience; now full professor in Eastern institution. Desires advancement. E209

Economic theory, money and banking, public finance: Man, 34, Ph.D. Seeks position teaching economic analysis at or near graduate level. Teaching and research ex-

perience; many published articles; comprehensive volume awaiting publication. Minimum salary, $4,500. E212

Statistics, marketing, economics: Man, 35, married, Ph.D., University of Illinois. Six years of college teaching in statistics and mathematics; 4 years of experience in government positions (2 years as economist and 2 years as statistician). Publications in marketing and statistics; travel throughout the U. S. and abroad. Seeks teaching position in school of business or economics department; prefers state institution in small town. E230

Labor economics and problems, economic theory, business cycles, statistics, American economic history: Man, 27, married, M.A., Ph.D. residence completed and now working on dissertation at Columbia University. One year of teaching at major college in New York; 3 years of executive experience in government industrial relations research and labor disputes settlement; 2 years of government administration and research in war materials procurement; sometime assistant in economics at leading university; research aid in labor relations for national business magazine. Available in June, 1948. E232

Elementary economics, theory of employment, money, economic activity, international trade: Man, 32, B.A. (Econ.) Honours and B.Sc. (Econ.) Honours, English universities, F.R.Econ.S. At present attached to foreign delegation to U.N. Conference on Trade and Employment. Desires teaching or research position in a good university. E241

Advanced theory, international economics, social control of business, Russian economics and institutions, labor, monetary economics: Man, 33, married, M.A., Ph.D., Columbia Uniersity. Four years of teaching experience; over 5 years of top-level experience with good government agencies, both here and abroad; travel in Europe and Latin America; many publications; research now in progress. At present visiting professor at outstanding Midwest university. Seeks permanent post at good institution, preferably one with research interest. E243

Air and surface transportation, economic development, international economics, market and economic research: Man, 32, married, M.A., working towards Ph.D. Air transport analyst and consultant, 5 years; writing book on air transportation. Successful experience in statistics and report presentation. Desires position permitting research in transportation, especially as related to economic planning by all levels of government. E246

Advertising, marketing, retail distribution, etc.: Woman, 30, married, M.S. in Business Administration. At present assistant professor at outstanding Western state university; 8 years of business experience; 1 year government; 3 years teaching. Seeking post in high-ranking college, East or Midwest location preferred. E254

International economics, comparative economic systems, public finance, principles of economics, economic history: Man, 40, single, Ph.D. University of Frankfurt (Main); U. S. citizen. Eight years of experience as economist with U. S. government agencies and with leading private economic research organization; now teaching at Eastern college. Available in September, 1948. E255

Principles of economics, intermediate and advanced theory, history of economic thought, contemporary economic thought, business cycles, public finance, postwar problems, comparative economic systems, economic history (U. S. and European): Man, 52, European background, American Ph.D. A decade of experience as corporation top executive; 5 years of American teaching; now assistant professor in large Eastern university. Desires teaching opportunities in line with his abilities, professional advancement, and prospect of early tenure. Available in May, 1948, for summer school; September, 1948, for academic year work. E259

Elementary economic principles and theory, history of economic doctrines, government and political theory, public finance: Man, 31, single, Polish subject at present in Great Britain. M.A. (St. Andrews), 1944, Ph.D. (Edinburgh), 1947. Two years of experience in research; speaks fluent English; some teaching experience. Desires lectureship or research in conomics. E260

Monetary and economic theory, international trade, money and banking, business cycles: Man 35, single, M.S., Columbia, Ph.D. thesis near completion. Travel abroad and some European education. Four years of military service in teaching and administrative positions; 2 years of teaching experience in elementary and advanced courses in leading Midwestern university. Available in June, 1948. E261

Elementary and advanced accounting, income tax accounting, introductory statistics, principles of economics, corporation finance, investments: Man, 27, M.A., 1944, Minnesota. Completing work for Ph.D. Four and half years of teaching experience. Now teaching but available in June, 1948. E262

Money and banking, international economics, theory, history of economic thought and institutions: Man, 34, married. Two years teaching principles and freshman survey of economic history at large Midwestern state university, where now working on dissertation, aiming at completion of Ph.D. this summer. Experience in journalism, selling, bookkeeping, and as statistical research assistant. Seeks teaching and/or research opening in September. E263

Principles of economics, business cycles, comparative economic systems, history of economic thought, international economics, labor, money and banking, social control of business: Man, 44, married, Ph.D. Twelve years of economic work with business and government; 8 years of teaching subjects named. Now in position requiring much administrative work as well as teaching; wants teaching only. Available in June, 1948. E264